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Phibro-Tech, Inc.

October 2001
Quarterly Sampling Report and
2001 Annual Groundwater Monitoring Report
Santa Fe Springs, California

January 14, 2002

Prepared for:

Phibro-Tech, Inc.
8851 Dice Road
Santa Fe Springs, California 90670

Prepared by:

CDM
18881 Von Karman Avenue, Suite 650
Irvine, California 92612

Project No.: 2279-11463-111.REP.REPT

PHIBRO-TECH, INC.

January 17, 2002

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California RWQCB, L.A. Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Mr. Ron Leach
USEPA, Region IX (H-4-4)
75 Hawthorne Avenue
San Francisco, CA 94105

Ms. Karen Baker
Permitting Division
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

Dear Mss. Chou and Baker and Mr. Leach:

Enclosed are the October 2001 Quarterly Groundwater Monitoring Report and 2001 Annual Groundwater Monitoring Report for Phibro-Tech, Inc., Santa Fe Springs facility. The Report includes analytical results and physical measurements obtained October 16 - 18, 2001 from selected monitoring wells at Phibro-Tech. Since this Report includes portions of the RCRA Facility Investigation (USEPA Docket No. RCRA 09-89-0001), this Report will also be submitted to the EPA.

Based on a technical review by our consultant, Camp Dresser and McKee, a groundwater-monitoring program is included which was implemented beginning with the April 1991 groundwater monitoring. Additional wells and parameters changed at the request of EPA are included in this Groundwater Monitoring Report. The changes are described in the Report.

Please contact me if you have any questions or comments concerning this Report.

Sincerely,

Alonso F. Alatorre
Plant Manager

Enclosure

cc: see following page

grdwtrrptcoverltr

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The information contained in this document (October 2001 Quarterly Sampling Report and 2001 Annual Groundwater Monitoring Report, Phibro-Tech, Inc., Santa Fe Springs , California) dated January 14, 2002, has received appropriate technical review and approval. The activities outlined in this report were performed under the supervision of a Registered Geologist or a California Professional Engineer. The conclusions and recommendations presented represent professional judgments and are based upon findings from the investigation identified in the report and the interpretation of such data based on our experience and background. This acknowledgement is made in lieu of all warranties, either expressed or implied.

Reviewed and Approved by:

REGISTERED GEOLOGIST
SHARON L. WALLIN
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Sharon Wallin

Sharon Wallin, R.G.
Project Manager

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Section 1
Introduction

This report summarizes the October 2001 quarterly groundwater monitoring and sampling event at the Phibro-Tech, Inc. (PTI), Santa Fe Springs, California facility (formerly referred to as Southern California Chemical). This report presents the fourth quarter groundwater analysis for 2001. Contained herein are the results of laboratory analyses of groundwater samples and water level measurements obtained during the period of October 16 through October 18, 2001.

The purpose of this monitoring program, which began in March 1985, is to determine if compounds of concern detected in groundwater beneath the site are migrating from the facility. This is accomplished through the comparison of background or upgradient water quality and groundwater quality beneath the site. Statistically significant increases in contaminant concentrations between known areas of groundwater contamination and downgradient wells would indicate that migration is occurring. In the past, statistical analysis was performed annually and was included in the July quarterly monitoring reports. Statistical analysis is now conducted for each sampling event and is included in the corresponding monitoring report. The October 2001 statistical analysis is contained in Appendix F of this report.

To date, three types of contaminants have generally been detected in the groundwater beneath the site: soluble metals (primarily chromium and cadmium), purgeable aromatic organic compounds (toluene, ethylbenzene and total xylenes [TEX]) and purgeable halogenated organic compounds (i.e., solvents, primarily trichloroethene [TCE]). Groundwater modeling completed in January 1993, and groundwater monitoring conducted since 1985, indicates that the purgeable aromatic plume originated upgradient from the PTI facility. The distribution of TCE appears to be ubiquitous, however, somewhat elevated concentrations exist in the vicinity of Pond 1, a RCRA-regulated former surface impoundment area. Elevated concentrations of soluble metals have also been consistently detected in the vicinity of Pond 1. Soluble metal concentrations at the downgradient property line and in deeper wells, however, continue to be negligible to non-detect.

Approximately 16 years of quarterly groundwater monitoring at the PTI facility has indicated a general lack of hexavalent chromium migration. During groundwater modeling performed by CDM in 1993, a retardation factor of 50 was selected based on the observed distribution of hexavalent chromium in the groundwater. Previous data analysis indicated that the most likely basis for the relatively high (but within the range of reasonable and appropriate values) retardation factor would be the existence of reducing conditions in the saturated zone, promoting the conversion of hexavalent chromium (Cr^{+6}) to trivalent chromium (Cr^{+3}). Trivalent chromium, having a very low solubility in water, would tend to precipitate and sorb to the soil, limiting migration. During four quarterly sampling events conducted in 1996, additional laboratory analyses (iron and redox potential) were performed on groundwater samples collected from wells MW-04, MW-09, and MW-14S. These additional data, along with the pH, total chromium, and hexavalent chromium data, provided a better understanding of the mechanisms controlling chromium migration in groundwater underlying the facility and supported the above hypothesis. Please refer to Section 6.4 (Chromium Fate and Transport) of the October 1996 Quarterly Sampling Report for a detailed discussion of this conclusion.

In addition to the data obtained during the October 2001 sampling event, this report contains tables listing detection limits of the parameters analyzed (Appendix A). Historical sampling results for selected analytes from January 1989 to April 2001 are presented in Appendix B. Copies of the original laboratory results are included in Appendix C. Chain-of-custody records for the October 2001 sampling are included in Appendix D. Appendix E contains background groundwater concentrations of contaminants for the Santa Fe Springs area for the year 1999. Appendix F contains the complete quarterly statistical analysis. Appendix G contains the annual groundwater monitoring report for the year 2001.

Prior to October 1993, quarterly reports have included analytical result summary tables from all previous sampling rounds. Starting with the October 1993 quarterly report, historical water quality data tables are no longer included in the report as an appendix. Please refer to Appendix B in the July 1993 Quarterly Sampling Report for a summary of historical groundwater analytical data. A summary table of selected historical results since January 1989 is provided in Appendix B of this report. Beginning with the July 2001 quarterly report, analytical results have been input into an Access database. Analytical summary tables presented in Section 6 of this report and all subsequent reports will include a summary of analytical results since July 2001.

Section 2
Monitoring Well Sampling

CDM personnel conducted groundwater sampling activities, utilizing existing on-site monitoring wells, during the period of October 16 through October 18, 2001. Field activities were performed in general accordance with the groundwater sampling protocols as outlined in Section 4.3.3 of the approved RCRA Facility Investigation (RFI) Work Plan (CDM, June 1990). Prior to the submittal of the RFI Work Plan for regulatory agency review and approval, the J.H. Kleinfelder and Associates (Kleinfelder) Quality Assurance Project Plan (QAPP, May 1988) was used as the primary groundwater sampling guidance document. Proposed deviations from the RFI Work Plan (i.e., well purging using a submersible pump and sample collection using disposable bailers) were discussed in October 1994 correspondence to the DTSC. These changes were implemented during the October 1994 and all subsequent sampling events.

Twenty-four monitoring wells exist on-site. The locations of these wells are shown on Figure 2-1. One well, MW-06A, historically has not been sampled for groundwater analysis because it is screened in the Gage Aquifer, which is unsaturated below the PTI facility. The remaining wells are screened in the Hollydale Aquifer; 16 in the upper portion and 7 in the lower portion of the aquifer.

Beginning in February 1985, Kleinfelder initiated groundwater sampling, utilizing monitoring wells MW-01 through MW-06B. Six additional wells (MW-04A and MW-07 through MW-11) were installed at the site in July 1985, thereby increasing the total number of active wells to 12. Quarterly sampling of the 12 wells was initiated in March 1986.

Commencing with the January 1989 sampling event, CDM has been responsible for all groundwater monitoring activities at the facility. Ten wells (MW-01D, MW-06D, MW-12S, MW-12D, MW-13S, MW-13D, MW-14S, MW-14D, MW-15S, and MW-15D) were installed as part of the first phase of the RFI program and were first sampled during the October 1990 sampling round.

Groundwater analysis of the 22 wells which existed during the RFI program from October 1990 to January 1991, indicated that the number of wells sampled could be reduced and yield comparable results to sampling all the wells. During sampling rounds in April, July, and October 1991, and in January 1992, 11 wells were sampled. Wells screened in the upper portion of the Hollydale Aquifer included MW-01S, MW-03, MW-04, MW-07, MW-09, MW-11, MW-14S, and MW-15S, and wells screened in the lower portion of the Hollydale Aquifer included MW-01D, MW-04A, and MW-15D.

Beginning with the April 1992 sampling round, three additional wells (MW-06B, MW-06D, and MW-16) were included in the quarterly monitoring program, bringing the total number of sampled wells to 14. A new well, MW-16, constructed in

March 1992 as part of the Phase II RFI program, was sampled for the first time during the April 1992 sampling round. The same 14 wells have been sampled during all subsequent sampling rounds. On several occasions, additional laboratory analyses have been performed and additional wells included in quarterly sampling, at the request of the United States Environmental Protection Agency (USEPA). Additional analyses and wells are noted in the comment column of Table 2-1, which summarizes the groundwater monitoring program at the site.

In April 2000, the frequency of groundwater monitoring was reduced from quarterly to semi-annually. In April 2001, as requested by the California Department of Toxic Substances Control (DTSC), quarterly sampling was re-implemented.

The 14 wells currently included in quarterly sampling are MW-01S, MW-01D, MW-03, MW-04, MW-04A, MW-06B, MW-06D, MW-07, MW-09, MW-11, MW-14S, MW-15S, MW-15D, and MW-16. Ten shallow and four deep wells are analyzed for pH, metals (cadmium [Cd], total chromium [Cr], and copper [Cu]) using EPA Method 6010A; hexavalent chromium using EPA Method 7199, and volatile organic compounds (VOCs) using EPA Method 8260. During the July and October 2001 sampling events, DTSC requested that wells MW-01S, MW-04, MW-09 and MW-11 be analyzed for 1,4-Dioxane. A detailed listing of analytical parameters per sampling event is provided in Table 2-1.

The 14 on-site wells were purged and sampled in the following order: MW-01S, MW-01D, MW-03, MW-15D, MW-15S, MW-06D, MW-06B, MW-14S, MW-04A, MW-04, MW-16, MW-09, MW-07, and MW-11.

2.1 Sampling Procedure

Field sampling was conducted in general accordance with procedures detailed in the RFI Work Plan. Sampling practices included the following: check for floating product and hydrocarbon vapors at each well; measure static water level and total depth of each well in order to calculate pre-sampling evacuation volumes; purge each well and collect a groundwater sample for laboratory analysis; decontaminate sampling equipment; and handle sample-filled containers in accordance with Section 4.3.3.5 of the RFI Work Plan.

2.1.1 Organic Vapor Check

Standard field procedures included checking the interior of each well with a photoionization detector (PID) (equipped with a 10.0 eV lamp) for the presence of organic vapors whenever the well casing was opened. With the sampling team members standing upwind of the well, the well cap was opened slightly, allowing for the insertion of the PID probe tip inside the well. Readings were monitored until they stabilized, which was usually at zero parts per million (ppm). The final reading, as well as the peak reading, was recorded in the field logbook. The cap was then removed and the well allowed to vent for a short period of time prior to measuring the static water level. The maximum PID readings taken during the collection of water level measurements are shown in Table 5-1 in Section 5.

2.1.2 Detection of Immiscible Layers

In order to detect the presence of floating, immiscible layers on top of the groundwater surface, a clear bailer was lowered approximately one-half the length of the bailer below the surface of the water in each well. The bailer was removed from the well and its contents checked for immiscible layers or iridescence. The bailer was decontaminated and the sampling line discarded after each use. If immiscible fluids had been detected, a sample would have been collected for laboratory analysis of purgeable halocarbons and aromatics (EPA Method 8260) and total petroleum hydrocarbons (California Department of Health Services [CA DHS] Method) using a new bailer. As in all previous quarterly groundwater sampling at the PTI facility by CDM, immiscible layers were not detected during the October 2001 sampling event.

2.1.3 Static Water Level/Well Depth Measurement

On October 16, 2001, prior to the initiation of on-site well pumping, the static water level at 22 of the 24 on-site wells was measured 3 times at each well location with a decontaminated electric water level indicator (sounder) and recorded. The measurements collected in the wells were identical, therefore, there was no need to collect additional measurements or average the data of these wells. The results of these measurements are shown in Table 5-1 and discussed in Section 5. One well (MW-06A) was dry, and MW-02 was not measured due to its proximity to MW-12S. Well MW-10 was inaccessible during the water level round and was also not measured.

The water level in each well was also measured immediately prior to initiating well evacuation procedures for calculation of well purge volume. During measurement, the measuring (reference) point used was noted (i.e., the top of the steel casing), and the depth to water below the reference point was measured to the nearest 0.01 foot and recorded in the field log book. Wellhead elevation data was used with depth to water measurements to calculate groundwater elevation at each well location.

The total depth of each well sampled was also measured with the sounder to the nearest 0.1 foot. The amount of fill material in the bottom of the well was calculated from well construction data and noted in the logbook. Prior to first use, the sounder was calibrated and the meter response checked. The sounder probe and line were decontaminated after each use.

2.1.4 Purge Volume Determination/Well Evacuation

Saturated casing volume was calculated at each well by using the depth to water and bottom sounding measurements obtained immediately prior to purging, to calculate the amount (height) of the saturated well casing. The inside diameter of the casing was then measured, and the following formula applied:

$$\text{Volume} = \pi\ (\text{radius}^2) \times \text{height}$$

A minimum of three saturated casing volumes of water was evacuated from each well prior to collecting a groundwater sample for laboratory analysis.

During the October 2001 sampling round, all 14 of the wells currently monitored were purged using a Grundfos 2-inch diameter submersible pump, and each well was sampled using a new disposable bailer.

Field parameters were measured during well evacuation using Myron-L multimeter and Hach turbidity meter for all wells. The instruments were calibrated or field checked prior to use with standard solutions in accordance with manufacturer's directions. The meters are used to determine the stability of discharge water field parameters prior to collection of a sample for laboratory analysis.

Periodically, during well evacuation, the field parameters of the discharge water were measured and recorded in the logbook. The physical appearance of the water (turbidity, color, sediment content, etc.) was also noted and recorded. Initial field turbidity measurements generally ranged from 2 to greater than 1,000 nephelometric turbidity units (NTUs) at the start of well evacuation. At the end of well evacuation, measurements were generally less than 10 NTUs. Higher turbidity at the start of purging seems to be related to agitating the water column and resuspending material from the bottom of the well during pump installation. After a minimum of 3 saturated casing volumes of water were evacuated from each well and the field parameters stabilized (change between readings of less than 5 to 10 percent), a sample for laboratory analysis was collected.

All purge water collected from each well was contained in a 250 gallon portable tank and then discharged directly into PTI facility's wastewater treatment system.

2.1.5 Sample Collection and Handling

Groundwater samples were collected with a new disposable bailer from the approximate middle of the perforated section, and poured directly into previously labeled sample bottles. During sample collection, the bailer was carefully and gently lowered past the air/water interface to minimize agitation and aeration of water during sample collection. The sample bottles were placed inside plastic zip-lock bags and then placed immediately into an ice-cooled chest. Prior to shipment, the bottles were cushioned with bubble wrap or plastic bags to avoid breakage. Samples collected for total metals analysis were field filtered using a 0.45-micron filter. A volume of groundwater equal to 2 times the capacity of the filtering device was passed through the filter and discarded prior to filtering each sample for total dissolved metals (Cd, Cu, and Cr) analysis. Used filters were discarded after each use.

The October 2001 groundwater samples were submitted for laboratory analysis of the following parameters:

- Volatile Organic Compounds by EPA method 8260
- Metals (Cd, Cu, and Cr)
- Hexavalent Chromium (Cr^{+6})
- pH
- 1,4-Dioxane (Selected Samples)

Groundwater sample bottles were numbered using the following format:

PTI-MW01S-051

Where:

PTI	-	designates site acronym
MW01S	-	designates sample location number (MW = Monitoring Well)
EB	-	designates equipment blank sample
TB	-	designates travel blank sample
051	-	designates sequential sample number (per sampling event)

This was the 50th round of sampling conducted by CDM, however, due to a previous labeling inconsistency, a 051 sequence number was assigned to all groundwater samples collected during this round. Sample label information included date and time of sampling, CDM sample number, and analytical parameters.

Chain-of-custody forms that indicated the label information as well as the responsible person during each step of the transportation process accompanied all filled sample containers that were collected from each well. All samples were sent by courier to Severn Trent Laboratories (STL) in Santa Ana, California on the day that they were collected and a copy of the chain-of-custody form for that day was retained by CDM field personnel. Copies of completed chain-of-custody forms are included in Appendix C. The laboratory was notified at the time of delivery that one or more Cr^{+6} sample(s) were contained in the shipment to ensure that the samples would be analyzed within the prescribed 24-hour holding period.

2.2 Equipment Decontamination Procedures

The following sections describe the procedures utilized to decontaminate groundwater sampling equipment.

2.2.1 Sampling Pump/Lines Decontamination

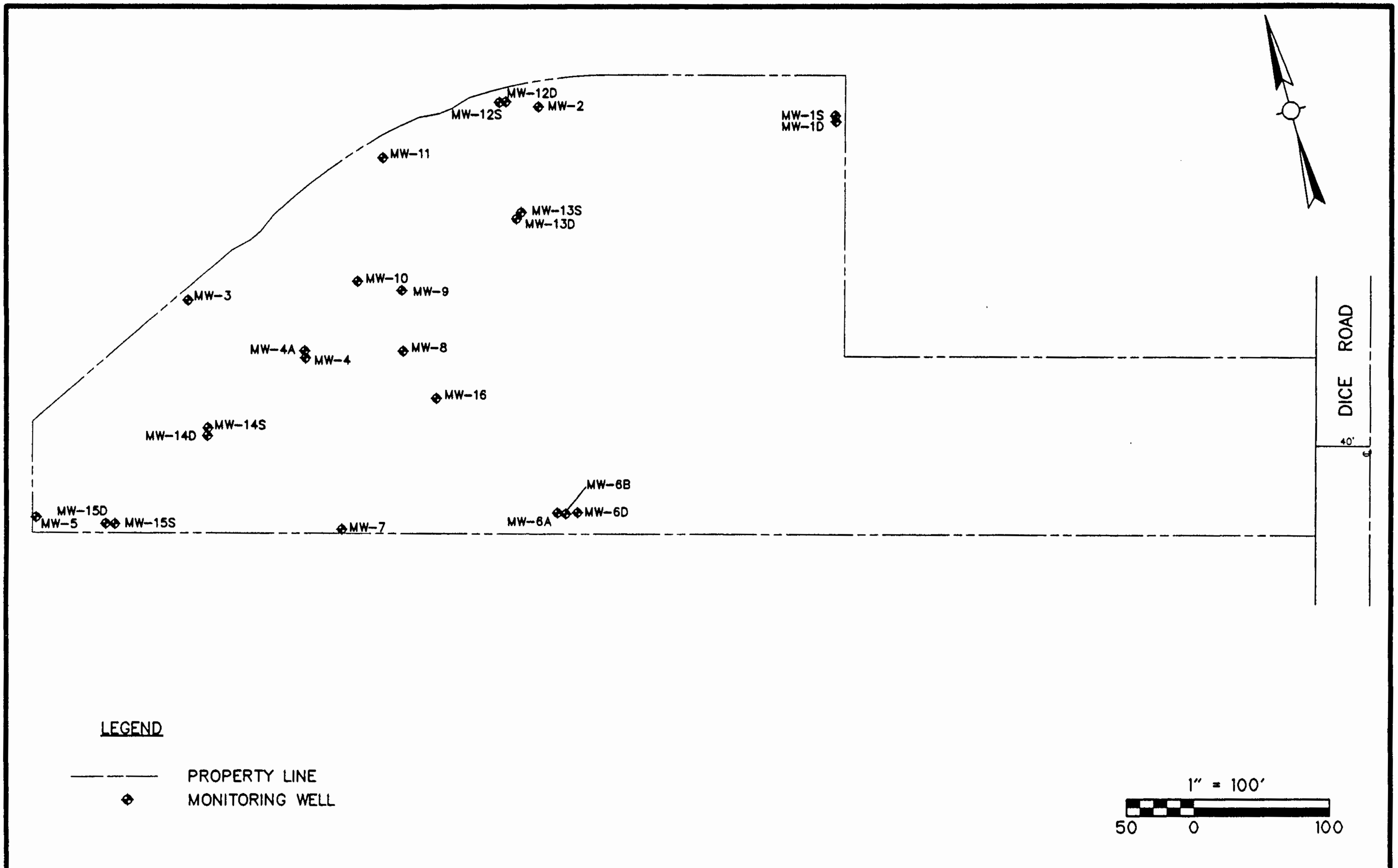
The submersible pump and discharge tubing used for well purging were decontaminated to reduce the possibility of cross-contamination between monitoring wells. The first step in the decontamination procedure was to submerge the pump into a 4-foot section of 4-inch diameter PVC pipe containing a soap (Alconox, a laboratory-grade detergent) and water mixture. Then, at least five gallons of the solution were pumped through the system. The pump assembly was then submerged in another section of PVC pipe filled with tap water and at least five gallons were pumped through the system. The final decontamination step was accomplished by submerging the pump into another section of PVC pipe containing deionized (DI) water and pumping approximately five gallons of DI water through the system.

The exterior of the pump and discharge tubing was steam cleaned, as well as the exterior of the reel holding the tubing. The decontamination of the exterior pump line was performed over a stainless steel containment basin located on the groundwater sampling rig. The spent water was recovered and discharged into the facility's wastewater treatment system.

2.2.2 Accessory Sampling Equipment Decontamination

Accessory sampling equipment such as the metals filter apparatus and water level sounder were also decontaminated to minimize the possibility of cross-contamination between the monitoring wells. The filter apparatus and sounder were decontaminated first by washing in a bucket of soap and water, followed by a tap water rinse, followed by a final DI water rinse. Bailers used to test for an immiscible layer were decontaminated and reused. The bailers and nylon rope that were used to sample wells were discarded immediately after use.

K:\2279\2279-111\CAD\ FIG_2-1 06/01/00 10:16 Negretegd



PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

MONITORING WELL LOCATION MAP

CDM
environmental engineers, scientists, planners, & management consultants

Figure 2-1

Table 2-1
PHIBRO-TECH, INC.
Groundwater Monitoring Program Summary

Sampling Event	Indicator Parameters	Trace Metals	Hexavalent Chromium	Chloride	Nitrate	Volatile Organics	Appendix IX	1,4-Dioxane	Comments
3/85	Quad	Cu & Zn	X	X	X	--	--	--	Sampled wells MW-1, 2, 3, 4, 5, & 6B. Sulfide, nickel, copper and zinc requested by DOHS and RWQCB. Also Appendix III parameters and water quality parameters (see footnote).
7/85	Quad	Cd, Cr	X	--	X	--	--	--	Sampled wells MW-4A, 7, 8, 10 and 11
3/86	Quad	Cu & Zn	X	X	X	--	--	--	Sampled 12 wells (MW1, 2, 3, 4, 4A, 5, 6B, 7, 8, 9, 10 & 11). Also Appendix III parameters and water quality parameters (see footnote).
7/86, 9/86, 12/86	Quad	Cd, Cr, Cu, Zn	X	X	X	624	--	--	Sampled all 12 wells (as previous)
3/87	Quad	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	Sampled 11 wells, not 4A
7/87, 10/87, 2/88	Quad	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	After July 1987, all 12 wells were sampled during each event
6/88	X (not Quad)	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	Performed statistical analysis (t-test) on Indicator Parameters (IPs).
9/88	--	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	IPs & volatile organics from MW1, 2, 4A, 5, 6, 7 analyzed semi-annually in June/Dec.
1/89	Quad	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	After Jan. 1989, volatile organics analyzed for all 12 wells.
4/89	--	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	
7/89	Quad	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	Performed statistical analysis of Jan. thru July 1989 data (IPs, total and hexavalent chromium).
10/89	--	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	
1/90	Quad	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	
4/90	--	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	

TABLE 2-1
PHIBRO-TECH, INC.
Groundwater Monitoring Program Summary
(continued)

Sampling Event	Indicator Parameters	Trace Metals	Hexavalent Chromium	Chloride	Nitrate	Volatile Organics	Appendix IX	1,4-Dioxane	Comments
7/90	Quad	Cd, Cr, Cu, Zn	X	X	X	601/602	--	--	Performed statistical analysis of Jan. 1989 data (IPs, total and hexavalent chromium).
10/90	--	Cd, Cr, Cu, Fe, Ni, Pb, Zn	X	X	X	601/602	X	--	Sampled 22 wells, Appendix IX parameters analyses were performed on wells 4, 4A, 6B, 6D, 12S, 12D, 15S, 15D, plus a duplicate of 4.
1/91	Quad	Cd, Cr, Cu, Fe, Ni, Pb, Zn	X	X	X	601/602	--	--	Sampled 22 wells.
4/91	pH	Cd, Cr, Cu	X	--	--	601/602	--	--	New sampling program was initiated. Sampled 11 wells including wells MW-01S, MW-01D, -03, -04, -04A, -07, -09, -11, -14S, -15S, -15D.
7/91	pH	Cd, Cr, Cu	X	--	--	601/602	--	--	Performed annual statistical analysis.
10/91	pH	Cd, Cr, Cu	X	--	--	601/602	--	--	
1/92	pH only (all) TOC only (MW-01 & -04)	Cd, Cr, Cu	X	--	Ammoni a as nitrogen (MW-01 & -04)	601/602	--	--	Ammonia & TOC analyses added at MW-01S and MW-04.
4/92	pH only TOC only (MW-01 , -04, -09, -14S)	Cd, Cr, Cu-all see comments	X	--	Ammoni a as nitrogen (MW-01, -04, -09, -14S)	601/602	EDB (MW-04) TPH (W-16)	--	Sampled 14 wells including Wells MW-01S, -01D, -03, -04, -04A, -06B, -06D, -07, -09, -11, -14S, -15S, -15D, -16. Additional analysis as part of Phase II RFI; unfiltered metals on MW-04S and -14S. Pb and Ni on wells 1, 4, 14S, 15S, 16; Fe, Zn on well 16.
7/92	pH	Cd, Cr, Cu	X	--	--	601/602	--	--	Sampled 14 wells. Performed annual statistical analysis.
10/92	pH	Cd, Cr, Cu	X	--	--	601/602	--	--	Sampled 14 wells.

TABLE 2-1
PHIBRO-TECH, INC.
Groundwater Monitoring Program Summary
(continued)

Sampling Event	Indicator Parameters	Trace Metals	Hexavalent Chromium	Chloride	Nitrate	Volatile Organics	Appendix IX	1,4-Dioxane	Comments
1/93, 4/93	pH	Cd, Cr, Cu	X	--	--	8010/8020	--	--	Sampled 14 wells.
7/93	pH	Cd, Cr, Cu	X	--	--	8010/8020 (TVPH, TEPH)	--	--	Sampled 15 wells. (MW-13S was added) TVPH and TEPH analysis on MW-09, 13S, and 16 only. Performed annual statistical analysis.
10/93	pH	Cd, Cr, Cu	X	--	--	8010/8020	--	--	Sampled 15 wells (MW-13S not analyzed for metals and pH) TVPH & TEPH analysis on MW-04, 07, 09, 13S, and 16 only. Performed statistical analysis.
1/94, 4/94	pH	Cd, Cr, Cu	X	--	--	8010/8020	--	--	Sampled 14 wells Performed statistical analysis.
7/94	pH	Cd, Cr, Cu	X	See comment	--	8010/8020	--	--	Sampled 14 wells, chloride and sulfate analyses on MW-04, MW-09, MW-14S, MW-15S, MW-15D, and MW-16. Performed statistical analysis
10/94, 1/95, 4/95, 7/95, 10/95	pH	Cd, Cr, Cu	X	--	--	8010/8020	--	--	Sampled 14 wells Performed statistical analysis.
1/96	pH	Cd, Cr, Cu	X	--	--	8010/8020	--	--	Sampled 14 wells Performed statistical analysis. 1995 Annual Report included as Appendix F.
4/96, 7/96	pH	Cd, Cr, Cu	X	--	--	8010/8020	--	--	Sampled 14 wells Performed statistical analysis.

TABLE 2-1
PHIBRO-TECH, INC.
Groundwater Monitoring Program Summary
(continued)

Sampling Event	Indicator Parameters	Trace Metals	Hexavalent Chromium	Chloride	Nitrate	Volatile Organics	Appendix IX	1,4-Dioxane	Comments
10/96	pH	Cd, Cr, Cu	X	--	--	8010/ 8020	--	--	Sampled 14 wells Performed statistical analysis. 1996 Annual Report included as Appendix F.
1/97	pH	Cd, Cr, Cu	X	--	--	8260, MTBE	--	--	Sampled 14 wells Performed statistical analysis.
4/97, 7/97	pH	Cd, Cr, Cu	X	--	--	8260	--	--	Sampled 14 wells Performed statistical analysis.
10/97	pH	Cd, Cr, Cu	X	--	--	8260	--	--	Sampled 14 wells Performed statistical analysis. 1997 Annual Report included as Appendix F.
1/98	pH	Cd, Cr, Cu	X	--	--	8260	--	--	Sampled 14 wells Performed statistical analysis. Hexavalent Chromium by Method 7196 in all wells; and by Method 218.6 in wells MW-4A, MW-14S, MW-15S, and MW-15D.
4/98, 7/98	pH	Cd, Cr, Cu	X	--	--	8260	--	--	Sampled 14 wells Performed statistical analysis.
10/98	pH	Cd, Cr, Cu	X	--	--	8260	--	--	Sampled 14 wells Performed statistical analysis. 1998 Annual Report included as Appendix F.
1/99, 4/99, 7/99, 10/99, 01/00, 04/00, 10/00, 04/01	pH	Cd,Cr,Cu	X*	--	--	8260	_	--	Sampled 14 wells Performed statistical analysis. Monitoring and reporting frequency changed from quarterly to semi-annually in April 2000. Monitoring and reporting frequency changed back from semi-annually to quarterly in April 2001.

TABLE 2-1
PHIBRO-TECH, INC.
Groundwater Monitoring Program Summary
(continued)

Sampling Event	Indicator Parameters	Trace Metals	Hexavalent Chromium	Chloride	Nitrate	Volatile Organics	Appendix IX	1,4-Dioxane	Comments
07/01, 10/01	pH	Cd,Cr,Cu	X*	--	--	8260	_	MW-015 MW-04 MW-09 MW-11 MW-06D MW-15D	Sampled 14 wells Performed statistical analysis. 2001 Annual Report included as Appendix G (10/01) 1,4-Dioxane sampled in selected wells (MW-01S, MW-04, MW-04A, MW-06D, MW-11, and MW-15D) during 07/01 and 10/01.

Appendix III Parameters -	As, Ba, Cd, Cr, F, Pb, Hg, N, Se, Ag, Endrin, Lindane, Methoxychlor, Toxaphene, 2,4-D, 2,4,5-TP (Silvex), Radium, Gross Alpha & Beta, Turbidity, coliform bacteria.
Water Quality Parameters -	Cl, Fe, Mn, Phenols, Na, SO4
Indicator Parameters (IP) -	TOX, TOC, pH, EC (quadruplicate)
624 -	Volatile organics analysis
601/602 -	Purgeable halocarbons/aromatics analysis
8010/8020 -	Purgeable halocarbons/aromatic analysis
8260 -	Purgeable halocarbons/aromatic analysis
MTBE -	Methyl tertiary butyl ether
Appendix IX Parameters -	See Appendix F in the October 1990 Quarterly Sampling Report for a complete listing of parameters.
* -	Analytical method changed from EPA 7196 to 7199 beginning with the October 2000 Sampling Event

Section 3
Laboratory Testing

Severn Trent Laboratories, Inc., (STL) of Santa Ana, California provided Analytical testing of the 22 groundwater samples collected during the October 2001 monitoring event. Fourteen monitoring well samples and two blind duplicate samples from MW-04 and MW-09 were collected and submitted to STL for analysis of purgeable halocarbons/aromatics, cadmium, total and hexavalent chromium, copper, and pH. In addition, two equipment blank samples (EB) and deionized water source (DI) were submitted for analysis of the above parameters. Three travel blanks (TB) were also submitted to STL for analysis of purgeable halogenated/aromatic organics.

The October 2001 groundwater analytical results are discussed in Section 6 and summarized in Tables 6-1 and 6-2. Quality assurance analytical results (duplicates, equipment blanks, and travel blanks) are discussed in Section 4.0 and summarized in Table 4-1. Individual analytical reports for October 2001 are contained in Appendix C.

Section 4
Quality Assurance

To verify the accuracy and validity of analytical data, certain quality assurance procedures were implemented. The field and laboratory quality assurance results were checked for deviations from the Quality Assurance (QA) guidelines discussed in the RFI Work Plan.

4.1 Field Quality Assurance

The field QA procedures included the use of duplicate samples, equipment blanks, travel blanks, and the use of chain-of-custody forms. The results of the QA analyses have been compiled in Table 4-1. Detection limits of parameters analyzed are shown in the analytical reports contained in Appendix C. Relative percent differences (RPDs) between original and duplicate samples are also listed in Table 4-1.

4.1.1 Duplicate Samples

Standard accepted practice is to submit one duplicate sample for analysis for approximately every tenth sample collected; a ratio of 1 to 10. During the October 2001 round of sampling, duplicate samples were collected from monitoring wells MW-04 and MW-09. The duplicate samples were submitted to the analytical laboratory as blind samples, and were designated MW-35 and MW-37, respectively, on the chain of custody forms. Monitoring wells MW-04 and MW-09 were selected due to elevated concentrations of certain contaminants detected during previous sampling rounds. Analytical results for the duplicate samples for October 2001 are shown in Table 4-1.

Laboratory results for the sample collected from well MW-04 indicate that the original sample results deviated from the duplicate sample results, by greater than 20%, for the following parameters: Cr (31.7%), Cr^{+6} (31.7%), ethylbenzene (27.7%), TCE (25.6%), 1,1-dichloroethane (1,1-DCA) (20.9%), and cis-1,2-dichloroethene (cis-1,2-DCE) (21.9%). Sampling results from well MW-09 indicate that results from duplicate samples deviated from the original, by greater than 20%, for the following parameters: ethylbenzene (121.2%), tetrachloroethene (PCE) (26.1%), TCE (25.6%), 1,1-DCA (47.6%), chloroform (CFM) (51.4%), and cis-1,2-DCE (65.5%).

4.1.2 Deionized Water Source Sample

A sample was collected of the deionized water used to clean the equipment (PTI-DI-051) and submitted to the laboratory for VOC, Cd, Cr, Cr^{+6}, Cu and pH analyses. Results indicated that chloroform was detected at a concentration of 2.2 micrograms per liter (μg/L).

4.1.3 Equipment Blanks

Analytical results for the equipment blanks collected during October 2001 are shown in Table 4-1.

Equipment blank EB-01 was obtained by allowing deionized water to run through a new, precleaned, disposable bailer. The second equipment blank EB-02 was obtained by pouring deionized water over the submersible pump after decontamination. The samples were collected in the appropriate containers and submitted for laboratory analysis. Sample EB-01 was collected to evaluate the effectiveness of the factory cleaning process. Sample EB-02 was collected following pump decontamination after sampling well MW-09. The equipment blanks were submitted to the laboratory for analysis of VOCs (EPA Method 8260), cadmium, chromium (total and hexavalent), copper, and pH. The analytical results did not indicate any compound above the method detection limits in either equipment blank with the exception of chloroform in both EB samples. Results indicate that chloroform was detected in both EB samples at a concentration of 2.2 μg/L. Blaine Tech Services, a groundwater sampling subconsultant, provided the deionized water used for the collection of the equipment blanks.

4.1.4 Travel Blanks

The detection of compounds in travel blanks is generally indicative of systematic contamination from sample transport, laboratory glassware cleaning, laboratory storage, or analytical procedures. During the October 2001 sampling event, three laboratory-prepared travel blanks (TB01 through TB03) consisting of organic-free water were labeled and submitted to the laboratory for VOC analysis by EPA Method 8260. Travel blanks were placed daily inside each cooler, which contained samples for VOCs.

Table 4-1 shows the results of the travel blank analyses. No compounds were detected above the method detection limit in any of the three travel blanks.

4.1.5 Sample Control

All sample containers were labeled immediately prior to sampling with the sample identification information completed with a waterproof pen. Samples were transported under chain-of-custody and hand delivered by courier to the laboratory in ice-cooled chests. Copies of the chain-of-custody records are included in Appendix D.

4.2 Laboratory Quality Assurance

STL provides internal laboratory QA/QC results with each sample analytical report. Matrix spike, matrix spike duplicate, method blank, and duplicate control sample results are noted in the QA/QC reports. In addition, surrogate recoveries are also noted for VOC analyses. The laboratory QA/QC results were within acceptable limits for the October 2001 sampling. The laboratory control sample results were also within acceptable limits.

Table 4-1
Phibro-Tech, Inc.
Groundwater Analytical Results - October 2001
Field Quality Control Sample Analytical Summary

Well ID	Sample Date	Sample Type	Metals (mg/L)				VOCs & 1,4-Dioxane (ug/L)													
			Cadmium	Chromium	Cr+6	Copper	Benzene	Toluene	Ethyl-benzene	Xylenes, Total	PCE	TCE	1,1-DCE	1,1-DCA	1,2-DCA	CFM	cis-1,2-DCE	MCL	1,4-Dioxane
MW-04	10/18/2001		0.44	39.8	39.8	0.05 U	50 U	50 U	3700	50 U	50 U	170	50 U	73	50 U	50 U	65	50 U	37
		K	0.4	28.9	28.9	0.05 U	50 U	50 U	2800	50 U	50 U	220	50 U	90	50 U	50 U	81	59	36
		RPD	9.5 %	31.7 %	31.7 %				27.7 %			25.6 %		20.9 %			21.9 %	16.5 %	2.7 %
MW-09	10/18/2001		0.005 U	1.3	1.3	0.025 U	5 U	5 U	8.1	5 U	6.5	440	89	260	240	110	15	69	75
		K	0.005 U	1.4	1.4	0.025 U	5 U	5 U	33	5 U	5 U	340	64	160	250	65	7.6	68	88
		RPD		7.4 %	7.4 %				121.2 %	5 U	26.1 %	25.6 %		47.6 %	4.1 %	51.4 %	65.5 %	1.5 %	16 %
DI	10/18/2001	N	0.005 U	0.01 U	0.01 U	0.025 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2.2	1 U	1 U	0.97 U
EB	10/17/2001	N	0.005 U	0.01 U	0.01 U	0.025 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	1 U	1 U	0.95 U
	10/18/2001	N	0.005 U	0.01 U	0.01 U	0.025 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2	1 U	1 U	0.95 U
TB	10/16/2001	N					1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
	10/17/2001	N					1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	
	10/18/2001	TB					1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	

Notes:

PCE = Tetrachloroethene; TCE = Trichloroethene; DCE = Dichloroethene; DCA = Dichloroethane; CFM = Chloroform; MCL = Methylene chloride.

U = Not detected at a concentration greater than the reporting limit shown.

Sample Type:
K = Duplicate (split) Sample
TB = Trip Blank
N = Equipment Decontamination Blank
RPD = Relative Percent Difference between original and duplicate samples (%)

Section 5
Groundwater Elevation

On October 16, 2001 prior to the initiation of well evacuation procedures, the depth to groundwater was measured in 21 of the 24 on-site monitoring wells. Groundwater elevations were calculated by subtracting the depth to static water level from the surveyed elevation of the corresponding monitoring well.

All of the monitoring well casing elevations were surveyed during the RFI and three wells (MW-04, MW-09, and MW-10) were resurveyed in January 1996 following wellhead repair. In July 1998, wellhead repairs were performed on wells MW-03, MW-06A, MW-06B, MW-06D, MW-08, MW-11, MW-12S, MW-12D, MW-13S, MW-13D, and MW-16. These wells were resurveyed during the July 1998 monitoring event. During the April 2000 monitoring event, two additional wellheads were repaired (MW-14S and MW-14D). Wells MW-14S and MW-14D were resurveyed during September 2001.

During the October 2001 groundwater sampling round, water level measurements were taken at shallow wells MW-01S, MW-03, MW-04, MW-05, MW-06B, MW-07, MW-08, MW-09, MW-11, MW-12S, MW-13S, MW-14S, MW-15S, and MW-16. Water level measurements were also taken at deep wells MW-01D, MW-04A, MW-06D, MW-12D, MW-13D, MW-14D, and MW-15D. These wells were measured in order to evaluate the direction and gradient of groundwater flow underlying the facility and to help characterize the shallow and deep aquifer interaction. Well MW-02 was not measured due to its proximity to MW-12S. Well MW-06A was measured and found to be dry. Well MW-10 was inaccessible during the water level round.

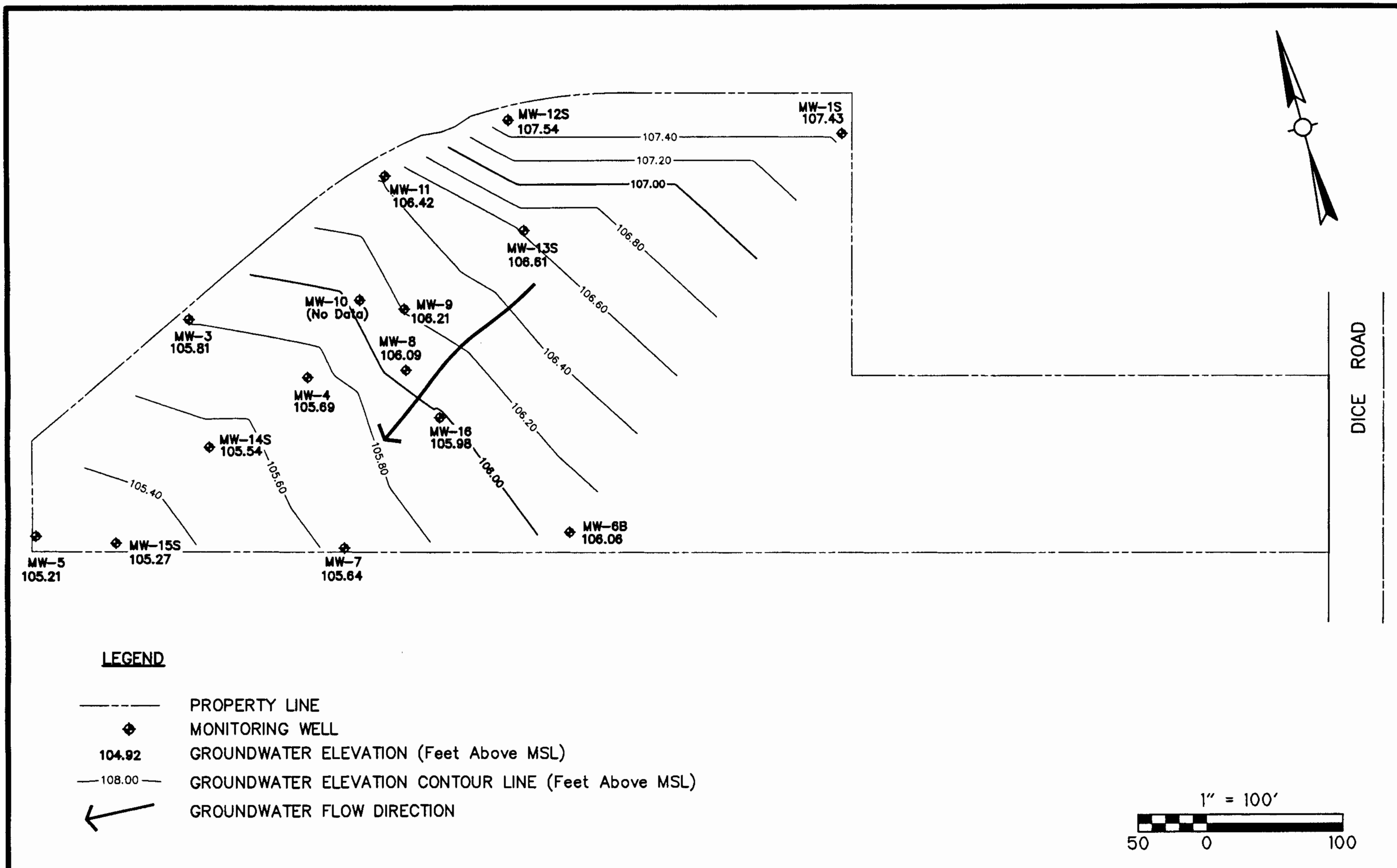
Table 5-1 lists the depths to water and groundwater elevations for each well measured. Figure 5-1 shows the approximate groundwater surface elevation of the upper Hollydale Aquifer for wells screened in the shallow interval (45 to 77 feet below ground surface) using data collected during the October 2001 sampling round. The contours shown in Figures 5-1 and 5-2 were generated by D.C.A., a surface contouring software developed by Softdisk, which is commonly used in conjunction with Computer Aided Drafting and Design (CAD) to produce contour maps and other graphics.

The direction of groundwater flow in the shallow monitoring wells is approximately southwest at an average gradient of 0.38 feet per 100 feet in the western portion of the facility, where the majority of the monitoring wells are located. The gradient in the shallow wells is comparable to the July 2001 sampling event, which had a gradient of 0.36 feet per 100 feet.

Figure 5-2 shows the approximate groundwater elevation of the lower Hollydale Aquifer for wells screened in the deeper interval (78.3 to 123.5 feet below ground surface). Groundwater contours for the deeper wells follow the same general trend as those of the shallow wells, with a direction of groundwater flow towards the southwest at an average gradient of 0.54 feet per 100 feet.

With the 21 wells measured for water levels during the October 2001 sampling round, there were seven locations where a deep well was measured adjacent to a shallow well. Shallow wells are screened within the interval of 45 to 77 feet bgs. Deep wells are screened within the interval of 78.3 to 107 feet bgs, with the exception of MW-15D, which is screened from 108.5 to 123.5 feet bgs. Of the well pairs, groundwater elevations at deep wells MW-4A and MW-6D were slightly lower (0.03 feet to 0.22 feet) than the corresponding shallow well elevations. The groundwater elevations at deep wells MW-01D, MW-12D, MW-13D, MW-14D and MW-15D were slightly higher (0.01 feet to 0.19 feet) than the corresponding shallow well elevations. Based on these and past groundwater elevation comparisons among shallow and deep well pairs, it does not appear that a well-defined vertical gradient between shallow and deep intervals exists.

Average groundwater elevations during the October 2001 sampling event decreased from the previous sampling event in July 2001. Water levels decreased by an average of 4.33 feet and ranged from a minimum decrease of 3.38 feet at well MW-12D to a maximum decrease of 4.59 feet at well MW-04.



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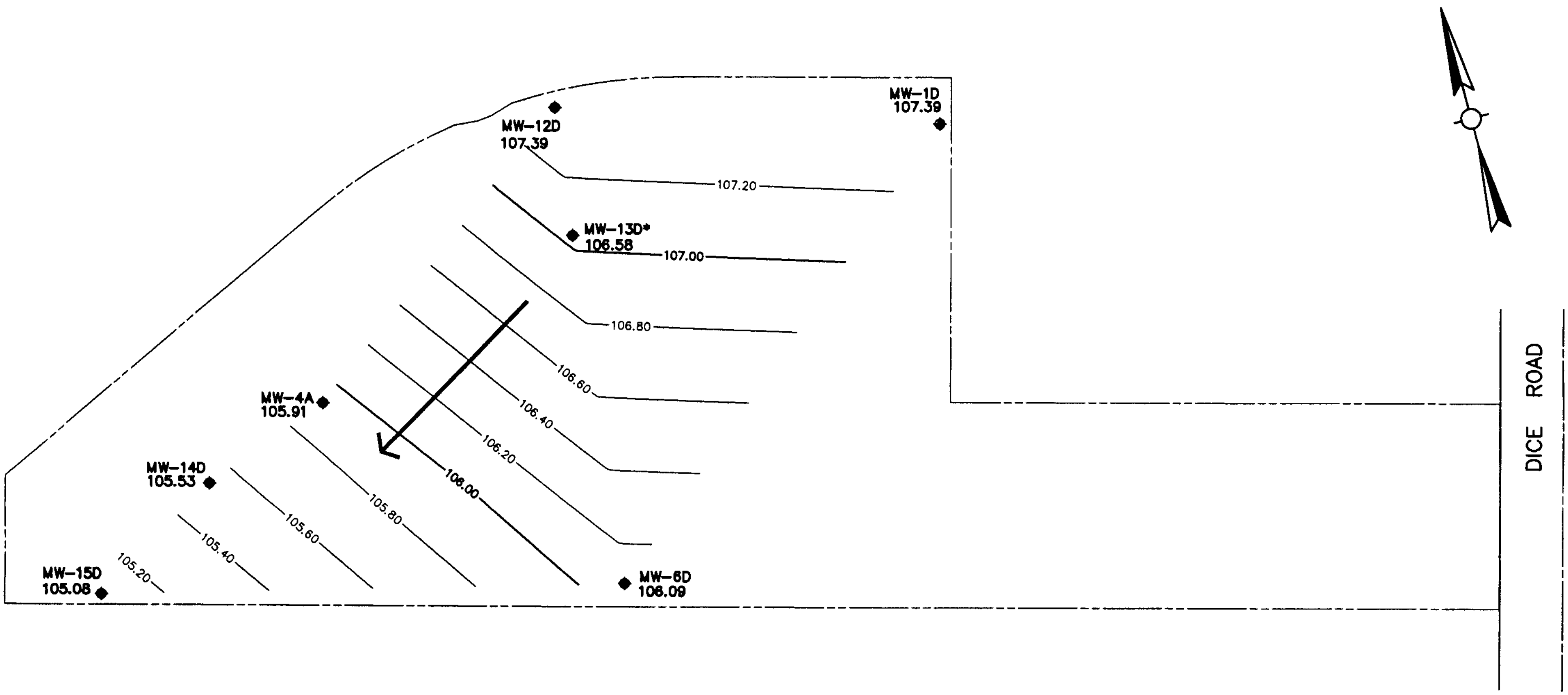
PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Groundwater Elevation Contours - Shallow Wells
October 2001

CDM

Figure 5-1



LEGEND

— - - —	PROPERTY LINE
◆	MONITORING WELL
104.92	GROUNDWATER ELEVATION (Feet Above MSL)
—108.00—	GROUNDWATER ELEVATION CONTOUR LINE (Feet Above MSL)
←	GROUNDWATER FLOW DIRECTION
*	ANOMALOUS MEASUREMENT, NOT CONTOURED

1" = 100'

50 0 100

I:\2279\2279-111\CAD\2001-4th Qtr\ Fig5-02 01/09/02 17:51 Negretegd

PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Groundwater Elevation Contours - Deep Wells
October 2001

CDM

Figure 5-2

TABLE 5-1
PHIBRO-TECH, INC.
October 2001 Quartery Monitoring Well Sampling
Groundwater Elevation Data

Well No.	Well Headspace* (ppm)	Total Depth Constructed (ft) (bgs)	Total Depth Measured (ft) (bgs)	Perforated Intervals (ft)	Calculated Casing Fill (ft)	M.P. Elevation (ft)	Depth to Water (ft below MP)	Groundwater Elevation (ft above MSL) October 2001	Groundwater Elevation (ft above MSL) July 2001
1S	0.0 / 0.0	62.5	62.0	47-62.5	0.5	152.63	45.20	107.43	111.58
1D	0.0 / 0.0	94.8	96.0	79.5-94.5	0.0	152.60	45.21	107.39	111.61
3	0.0 / 0.0	74.1	76.3	45-75	0.0	154.75	48.94	105.81	110.35
4	0.0 / 0.0	67.5	70.4	45-75	0.0	152.37	46.68	105.69	110.28
4A	0.0 / 0.0	107.0	108.8	87-107	0.0	152.46	46.55	105.91	110.38
5	0.0 / 0.0	75.0	---	45-75	---	153.26	48.05	105.21	109.76
6A	41.0 / 0.0	---	---	10-30	---	---	---	Dry	Dry
6B	0.0 / 0.0	77.6	76.6	45-75	1.0	149.53	43.47	106.06	110.29
6D	0.0 / 0.0	95.5	92.9	79-94	2.6	150.13	44.04	106.09	110.31
7	0.0 / 0.0	71.5	71.8	45-75	0.0	149.42	43.78	105.64	109.98
8	10.0 / 0.0	71.0	---	41-71	---	150.17	44.08	106.09	110.47
9	7.0 / 0.0	73.5	75.6	44-77	0.0	152.96	46.75	106.21	110.63
10	0.0 / 0.0	75.0	---	45-75	---	153.89	---	---	110.59
11	0.0 / 0.0	75.5	77.0	55-75	0.0	155.76	49.34	106.42	110.86
12S	0.0 / 0.0	72.0	---	51-72	---	155.79	48.25	107.54	111.30
12D	0.0 / 0.0	101.0	---	84.5-100	---	155.72	48.33	107.39	110.77
13S	0.9 / 0.0	70.3	---	50.3-70.3	---	151.72	45.11	106.61	110.96
13D	0.0 / 0.0	93.3	---	78.3-93.3	---	151.68	45.10	106.58	110.93
14S	4.0 / 0.0	71.5	70.9	46-72	0.6	150.54	45.00	105.54	110.07
14D	0.0 / 0.0	109.0	---	88-103	---	150.60	45.07	105.53	110.07
15S	0.0 / 0.0	71.5	71.6	51.5-71.5	0.0	151.01	45.74	105.27	109.84
15D	0.0 / 0.0	123.8	123.9	108.5-123.5	0.0	150.96	45.88	105.08	109.62
16	0.0 / 0.0	62.5	62.2	42-62	0.3	150.27	44.29	105.98	110.34

M.P. = Measuring point (top of steel casing)
G.W. = Groundwater
--- = Not measured or not calculated.
BGS = below ground surface

MSL = mean sea level
* = Measured with PID prior to sampling (casing/background)
Note: Depth to water measurements collected on October 16, 2001 prior to purging/sampling on-site wells.

Surface elevation for wells MW-14S and MW-14D were resurveyed on September 24, 2001.

Section 6
Groundwater Quality

Prior to the development of the project water quality database in July 2001, selected historical analytical results for each sampled well were presented in summary tables (see Appendix B). The two Appendix B tables present selected groundwater analytical parameters (hexavalent and total chromium, cadmium, copper, purgeable aromatics and trichloroethene), and groundwater elevations at shallow-well and deep-well locations sampled prior to July 2001. With the development of the project water quality database, analytical results for samples collected during July 2001 and all subsequent sampling events are summarized in the tables presented in this section. Laboratory analytical reports from all wells sampled during the October 2001 sampling round are located in Appendix C.

Consistent with the results of laboratory testing performed on the groundwater samples collected since January 1989 from the on-site monitoring wells, three contaminant plumes in the Hollydale Aquifer were identified. Historically, these plumes have been present at varying concentrations and lateral extent. One small plume, consisting primarily of chromium, has been aligned in a northeasterly to southwesterly direction in the vicinity of wells MW-04 and MW-14S. The second, consisting of purgeable aromatics, has also been aligned in a northeasterly to southwesterly direction with the highest concentrations generally found in wells MW-04, MW-14S, and MW-09. The third plume consists of TCE and related parameters with highest concentrations generally detected in wells MW-04, MW-09, MW-11, and MW-14S.

6.1 Halogenated Volatile Organic Compounds

Table 6-1 shows the analytical results from July 2001 through October 2001 for all wells sampled. TCE was the primary compound detected, with miscellaneous other halogenated organics also detected. The table also shows, for comparison purposes, maximum contaminant limits (MCLs) and concentrations for water supply wells in the Santa Fe Springs area. The supply wells, however, are likely screened much deeper than the wells at PTI. The City of Santa Fe Springs Annual Water Quality Report for 1999 (the most recent report available) is contained in Appendix E of this document.

Trichloroethene (TCE)

TCE was detected in all 14 of the groundwater monitoring wells sampled. The highest concentration of TCE detected was 1,500 μg/L in well MW-11, an increase from the result of 400 μg/L in July 2001. The concentration detected in October 2000 (2,900 μg/L) represented an all time high for this well, which is located along the northern boundary of the site. The TCE detected in well MW-11 likely originated from an off-site upgradient source. The second highest concentration of TCE detected was 440 μg/L in well MW-09, an increase from the result of 110 μg/L in July 2001. Of the 14 wells sampled, 10 wells contained concentrations of TCE that exceeded the MCL of 5 μg/L.

Compared to July 2001, TCE concentrations increased in 9 of the 10 shallow wells sampled. Excluding MW-11 and MW-09, TCE concentrations ranged from 2.8 μg/L (MW-15S) to 290 μg/L (MW-03). Compared to July 2001, TCE concentrations decreased in the shallow well MW-15S from 5.1 μg/L to 2.8 μg/L.

Of the 4 deep wells sampled, TCE concentrations decreased in well MW-04A from 44 μg/L to 22 μg/L compared with the July 2001 results. The remaining 3 deep wells TCE concentrations decreased compared to July 2001 and ranged from 3.5 μg/L to 6.7 μg/L.

Concentrations of TCE detected in shallow and deep wells are shown on Figures 6-1 and 6-2, respectively.

A review of the historical analytical results contained in Appendix B reveals that, with minor exceptions, TCE has historically been detected in all on-site monitoring wells, including the upgradient wells. Past discussions with Department of Health Services (now Cal EPA DTSC) and Regional Water Quality Control Board staff indicate that TCE and other halogenated organic are generally recognized as regional groundwater contaminants.

Other Halogenated Organics

During the October 2001 sampling, other halocarbon organics were detected in most of the on-site wells. Monitoring well MW-07 contained concentrations of 1,1-dichloroethene (1,1-DCE) at 16 μg/L, 1,1-DCA at 78 μg/L, 1,2-dichloroethane (1,2-DCA) at 27 μg/L, chloroform at 2.8 μg/L, cis-1,2-DCE at 36 μg/L and trans-1,2-dichloroethene (trans-1,2-DCE) at 4.8 μg/L. Of the six compounds listed above, only trans-1,2-DCE was reported at a concentration lower than the reported MCL.

Relatively high concentrations of 1,1-DCA were detected in wells MW-04, MW-09, MW-11 and MW-16 at concentrations ranging from 73 μg/L to 410 μg/L. Compared to the July 2001 results, the concentrations of 1,1-DCA increased in all four wells. The MCL for 1,1-DCA is 5.0 μg/L.

Results indicated that detectable concentrations of 1,2-DCA were reported in six of the samples analyzed. Concentrations of 1,2-DCA ranged from 1.1 μg/L to 240 μg/L in wells MW-01S, MW-07, MW-09, MW-14S, MW-15, and MW-16. The concentration of 1,2-DCA increased from 68 μg/L to 240 μg/L in monitoring well MW-09. The MCL for 1,2-DCA is 0.5 μg/L.

The compounds PCE, 1,1,1,-trichloroethane (1,1,1-TCA), carbon tetrachloride, chloroform and methylene chloride were also detected in several wells (see Table 6-1).

Detections of these other halogenated organic compounds are assumed to be related to the TCE plume.

6.2 Aromatic Volatile Organic Compounds

According to PTI personnel, organic chemicals have not historically been used on-site in any of the production processes. Two 10,000-gallon underground storage tanks (diesel and gasoline), however, were located in the approximate center of the facility, due east of the drum wash area. During tank removal operations in July 1989, petroleum hydrocarbon contamination was discovered in the tank excavation. The RFI report indicated that petroleum hydrocarbon contamination was not detected at depths below 30 feet near the former tank locations. Although they have not been used on-site, aromatic compounds have been historically detected in groundwater underlying the facility. The primary aromatic organic compounds of concern are toluene, ethylbenzene and total xylenes, which vary in both concentration and lateral extent. The RFI report indicated that these compounds appeared to be migrating onto the subject property from the property to the north. According to Los Angeles County Department of Public Works files, leaks from tanks containing purgeable aromatic compounds with subsequent groundwater contamination are known to have occurred at the property to the north of PTI.

Aromatic VOC results for October 2001 are presented in Table 6-1. Concentrations of total aromatics (BTEX) for the shallow wells are illustrated on Figure 6-3. Historic sampling results indicate that purgeable aromatic contamination originated off-site and has migrated onto the subject property. During previous sampling events, elevated concentrations of toluene, ethylbenzene and xylenes were detected in MW-11 and MW-3 along the northern perimeter of the property.

Since approximately July 1991, elevated concentrations of these compounds have been detected in well MW-04 and MW14S, indicating that the plume may be migrating downgradient. BTEX concentrations in MW-04 begin to gradually decrease from approximately October of 1998 through January 2000. Results from the January 2000 sampling event indicated a total BTEX concentration of 11.1 µg/L. However, during the October 2000 and April 2001 sampling events total BTEX concentrations in well MW-04 had increased to 2,500 µg/L and 4,050 µg/L, respectively. Results from the October 2001 sampling event indicated a total BTEX concentration of 3,700 µg/L at well MW-04. The majority of the total BTEX present is in the form of ethylbenzene. The second highest total BTEX concentration of 212 µg/L was detected in well MW-11.

Benzene

Benzene was detected above the reporting limit in two of the wells sampled. Results indicated the samples from MW-01D and MW-15D contained benzene at concentrations of 1.5 µg/L and 2.2 µg/L, respectively. During the prior July 2001 sampling event, benzene was not detected above the reporting limit in any of the

14 wells sampled. Historical evidence indicates that benzene is not a contaminant of concern for the facility.

Toluene

Toluene was not detected above the reporting limit in any of the 14 wells sampled. Toluene was not detected in any of the wells during the prior July 2001 sampling event.

Significant toluene concentrations were detected during July 1990 to July 1991 (MW-11), July 1991 to January 1992 (MW-04), July 1992 to July 1993 (MW-09), and July 1994 to January 1995 (MW-09). Concentrations were also detected at location MW-04 during January 1993. Elevated ethylbenzene and total xylene concentrations are generally associated with elevated toluene concentrations.

Ethylbenzene

During the October 2001 sampling round, ethylbenzene was detected at concentrations greater than the reporting limit in MW-04, MW-09, MW-11, MW-14S, and MW-16. The highest concentration of ethylbenzene (3,700 µg/L) was detected in MW-04, which was an increase from 2,400 µg/L reported in July 2001. The second highest concentration of ethylbenzene (90 µg/L) was detected in MW-11. Since the prior sampling event in July 2001, ethylbenzene concentrations have increased in wells MW-04, MW-11, MW-14S, and MW-16 and have decreased in well MW-09.

Total Xylenes

Total xylenes were detected above the reporting limit in two wells during the October 2001 sampling event. The concentration of total xylenes detected in MW-01D and MW-11 were 1.5 µg/L and 122 µg/L, respectively. Previous results from July 2001 indicated that well MW-09 contained total xylenes at a concentration of 25 µg/L.

6.3 1,4-Dioxane

Table 6-1 shows the analytical results for 1,4-Dioxane during the July and October 2001 sampling events. Groundwater samples from wells MW-01S, MW-04, MW-04A, MW-06D, MW-09, MW-11 and MW-15D were analyzed for 1,4-Dioxane. The highest concentrations (130 and 140 µg/L) were detected in upgradient shallow well MW-01S during July and October 2001, respectively.

6.4 Inorganic and Miscellaneous Parameters

Table 6-2 shows the analytical results for inorganic parameters (cadmium, total and hexavalent chromium, copper, and pH) for samples collected since July 2001.

Hexavalent Chromium (Cr^{+6})

During the October 2001 sampling, hexavalent chromium was analyzed using EPA Method 7199 with a method detection limit of 0.002 mg/L and a reporting limit of 0.002 mg/L. Prior to the April 2001 sampling event, hexavalent chromium was analyzed using EPA Method 7196 with a reporting limit of 0.02 mg/L.

Hexavalent chromium was detected in 6 of the 14 wells sampled. Monitoring wells MW-04 and MW-09 contained the highest concentrations of hexavalent chromium at 32 mg/L and 1.1 mg/L, respectively. During the July 2001 sampling event, these same two wells contained the highest concentration of hexavalent chromium. The remaining four wells contained hexavalent chromium concentrations that ranged from 0.0049 mg/L to 0.0088 mg/L during October 2001. Figure 6-4 shows the concentrations of hexavalent chromium detected in the shallow wells during the October 2001 sampling event.

The water purged from MW-04 has typically been bright yellow in color since CDM began sampling the wells on a quarterly basis in January 1989. During the October 2001 sampling round, the color of water from MW-04 was again noted as yellow.

Figure 6-5 shows the concentrations of hexavalent chromium and groundwater elevations in MW-04 over time. The concentrations of hexavalent chromium at MW-04 decreased from July 1989 (120 mg/L) to July 1993 (1.8 mg/L), while groundwater elevations increased. Since July 1993, hexavalent chromium concentrations have fluctuated while groundwater elevations have remained fairly constant. Historically, hexavalent chromium has been detected in four other wells other than MW-04, although the highest concentration has always been detected at MW-04.

At MW-15S, hexavalent chromium was detected at concentrations of 0.0074 and 0.0088 mg/L during the July and October 2001 sampling events, respectively.

Total Chromium (Cr[T])

Total chromium was detected above the reporting limit in three monitoring wells during the October 2001 sampling event. The highest concentration was detected in well MW-04 at a concentration of 39.8 mg/L, which is an increase from 12.6 mg/L in July 2001. Total chromium was also detected in MW-09 and MW-14S at concentrations of 1.3 mg/L and 0.14 mg/L, respectively. Figure 6-6 shows the concentrations of total chromium detected in shallow monitoring wells during October 2001. Figure 6-7 shows the concentrations of total chromium and corresponding groundwater elevations in MW-04 over time. Comparison of historical total chromium data with present data (Appendix B) indicates that total chromium concentrations, like those of hexavalent chromium, generally decreased from January 1989 to July 1993, and have fluctuated since July 1993. Historically, the highest total chromium concentrations have been detected in MW-04. Sporadic detections of total chromium close to the detection limit have occurred historically in nearly all shallow wells on-site.

Cadmium (Cd)

During the October 2001 sampling event, cadmium was detected at a concentration greater than the reporting limit in one well. Cadmium was detected in well MW-04 at a concentration of 0.44 mg/L, which is an increase from 0.32 mg/L in July 2001.

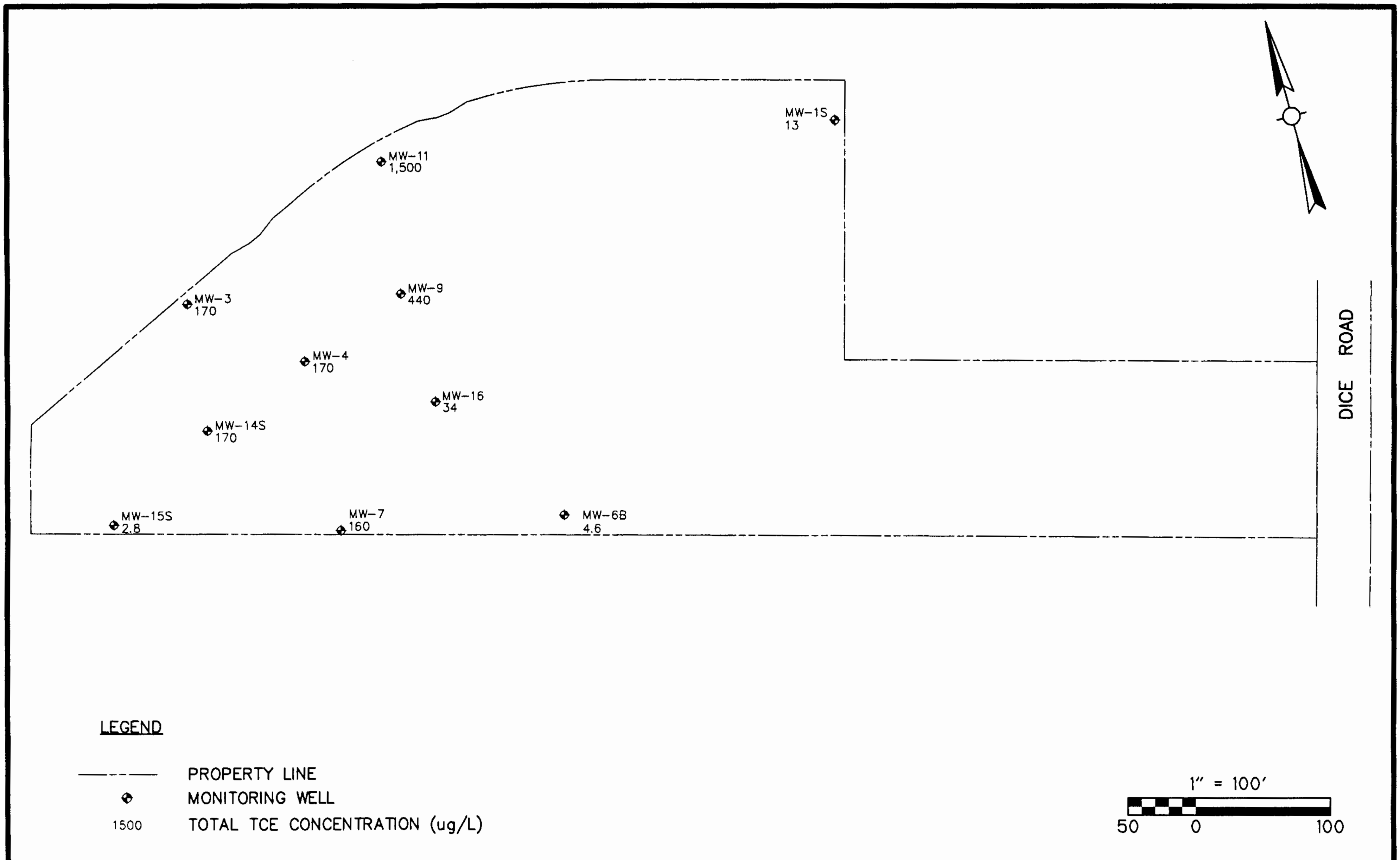
Previous concentrations in MW-04 have ranged from 0.028 mg/L in January 1989 to 0.86 mg/L in July 1992. Figure 6-8 shows the cadmium concentrations detected in the on-site wells during July 2001. Figure 6-9 shows the concentrations in MW-04 of cadmium and corresponding groundwater elevations in MW-04 over time. As shown on Figure 6-9, cadmium concentrations have fluctuated considerably (i.e., from non-detectable at a detection limit of 0.005 mg/L during July 1993 to 0.86 mg/L during July 1992) since July 1990. Cadmium has been detected consistently in only well, MW-04.

Copper (Cu)

Copper was detected at concentrations greater than the reporting limit in two wells, MW-07 and MW-14S, at concentrations of 0.073 mg/L and 0.042 mg/L, respectively. Figure 6-10 shows the copper concentrations detected in the on-site wells during October 2001. Historically, elevated concentrations of copper above the MCL have generally not been detected in on-site monitoring wells.

pH

Groundwater samples from all wells were measured for pH in the field during purging activities and also by the analytical laboratory on the samples submitted for analysis. Field pH measurements were recorded in the field logbook during well purging. In October 2001, the field measurements of pH generally correlated with the values shown in Table 6-2, which range from 6.7 to 7.6.



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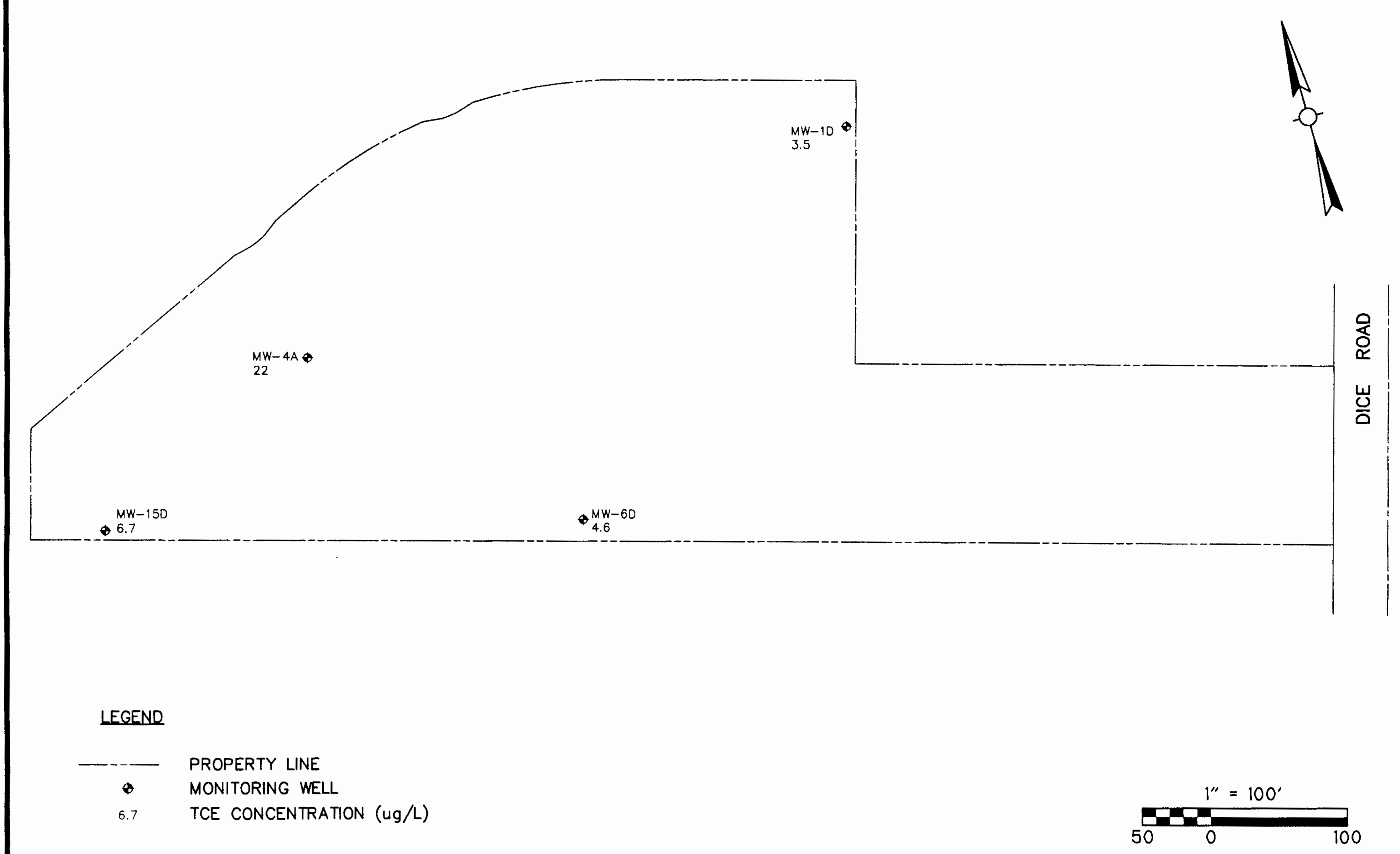
PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

TCE Concentrations - Shallow Wells
October 2001

CDM

Figure 6-1



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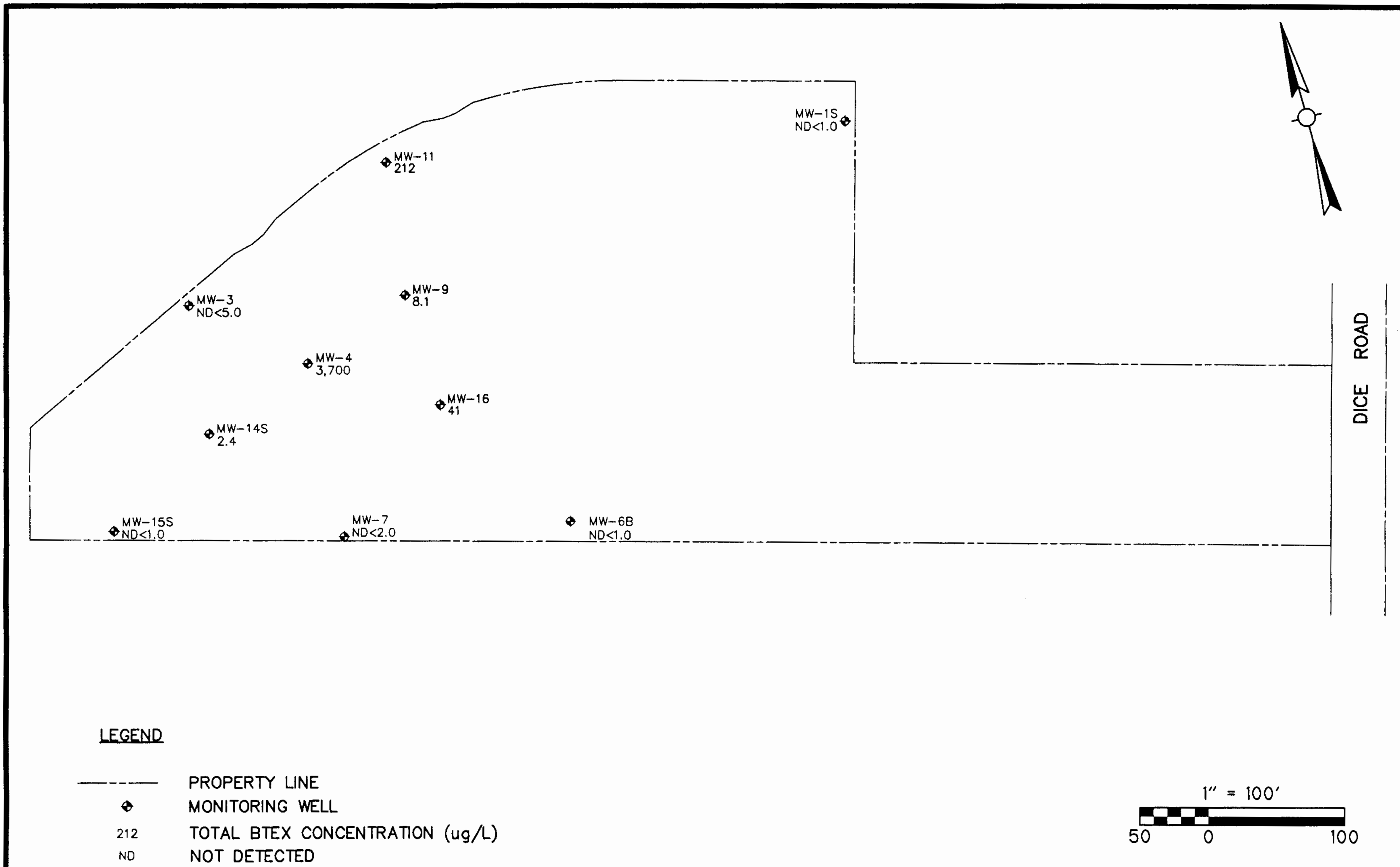
PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

TCE Concentrations - Deep Wells
October 2001

CDM

Figure 6-2



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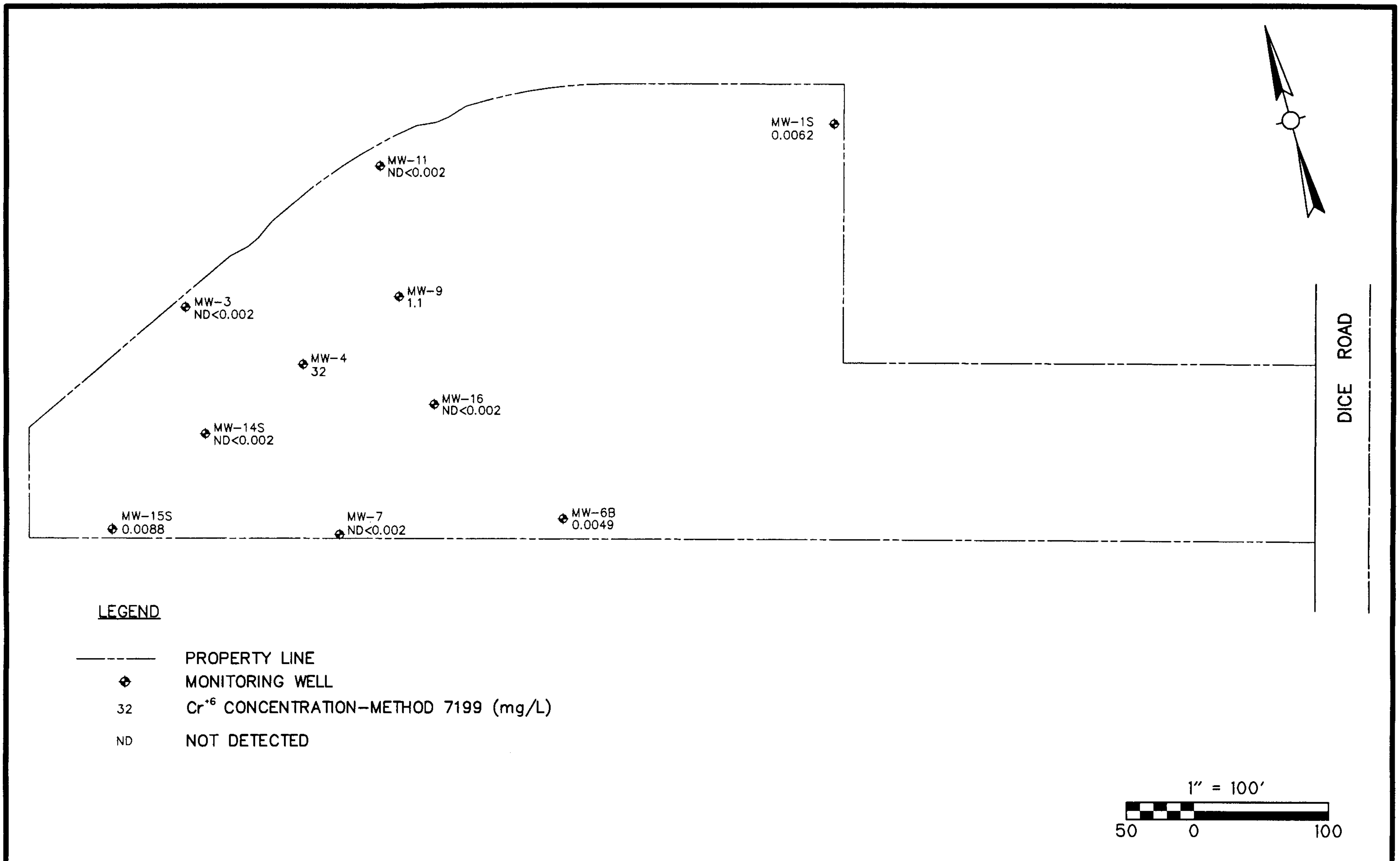
PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Total BTEX Concentrations - Shallow Wells
October 2001

CDM

Figure 6-3



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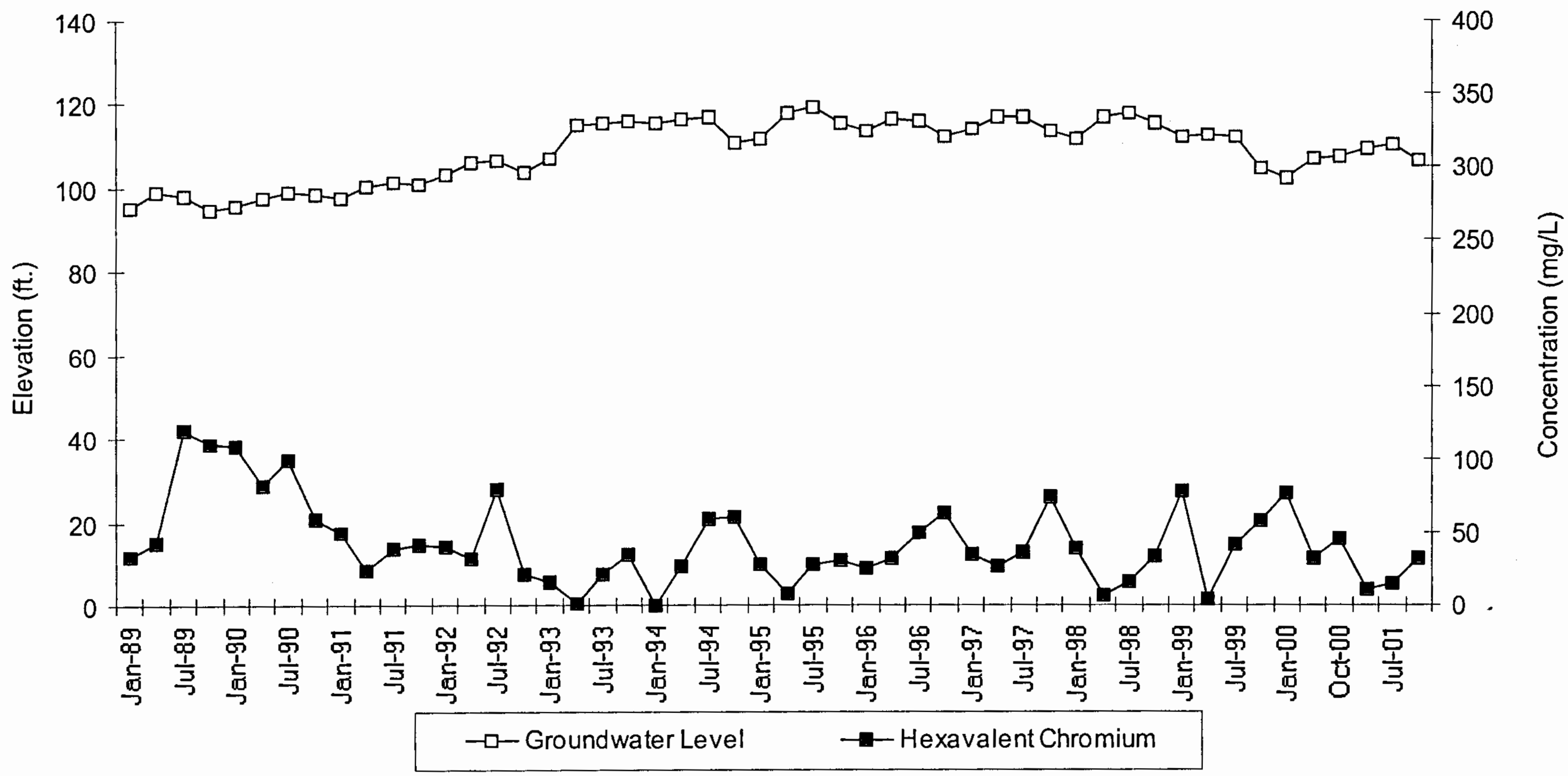
PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Hexavalent Chromium Concentrations - Shallow Wells
October 2001

CDM

Figure 6-4

I:\2279\2279-111\CAD\2001-4th Qtr\PhiTech-Oct01MWSamp.cdr HexChrom - Negretegd - 01/10/2002

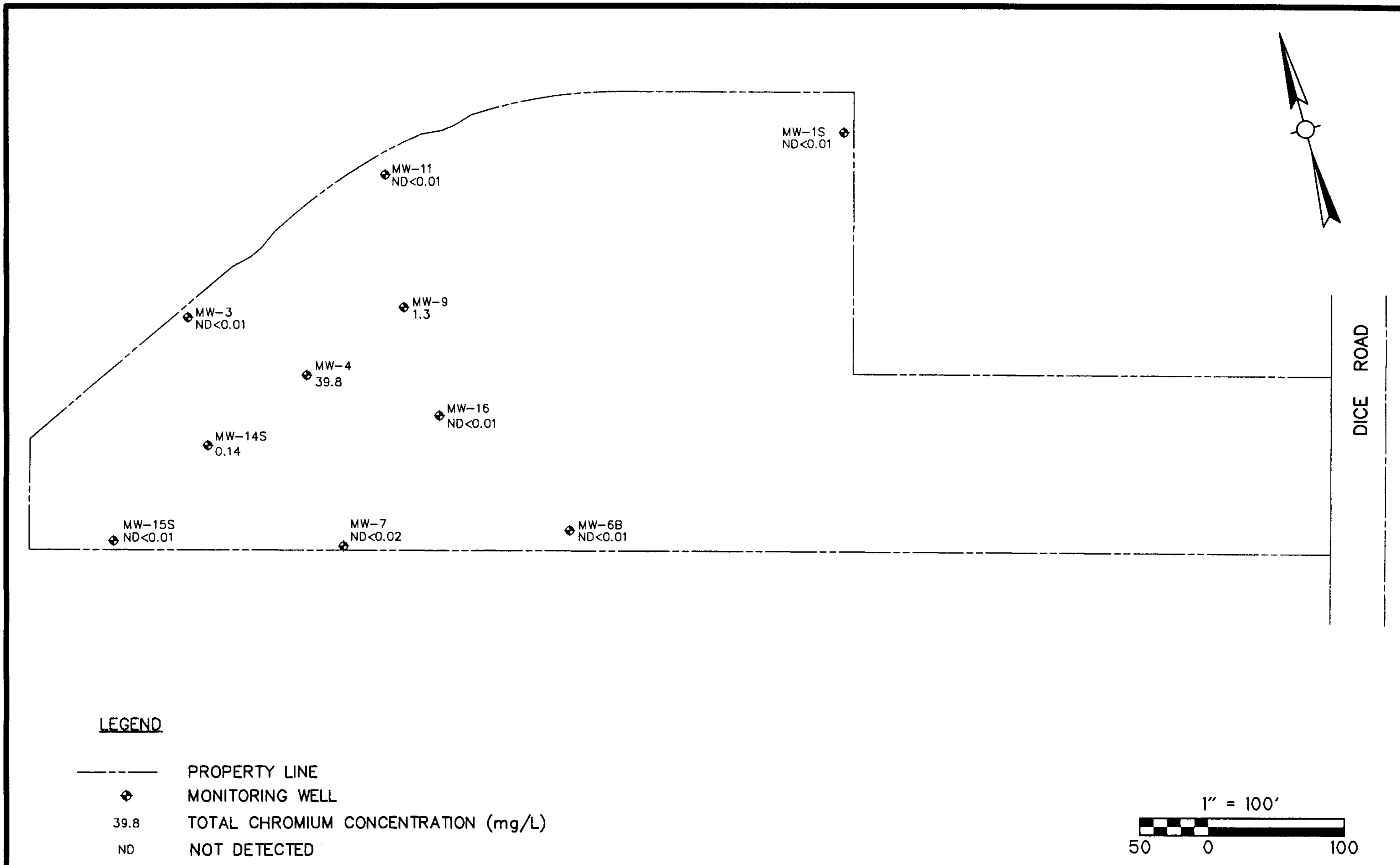


PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Hexavalent Chromium vs. Groundwater Level - MW04

CDM

Figure 6-5



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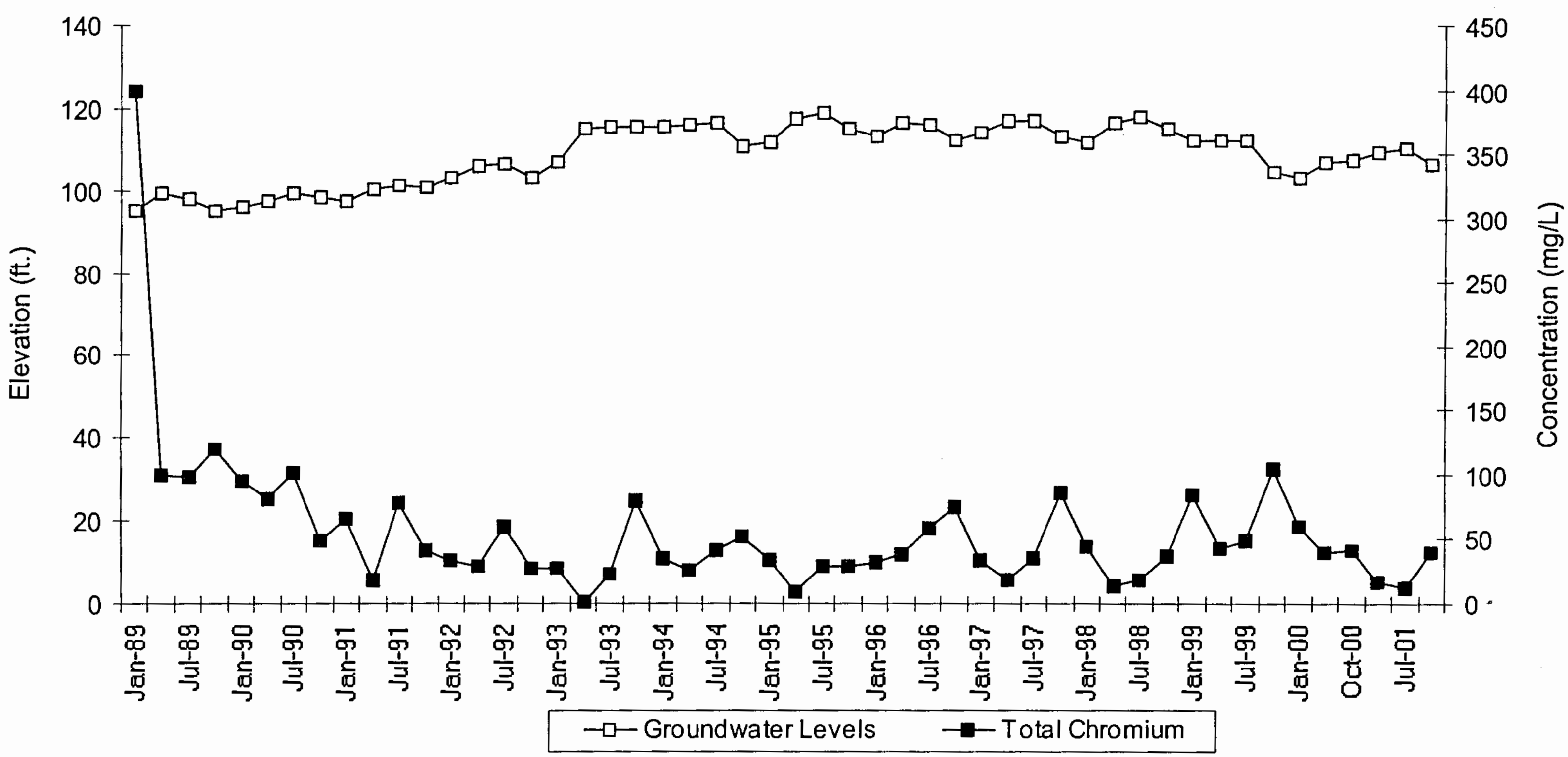
PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Total Chromium Concentrations - Shallow Wells
October 2001

CDM

Figure 6-6

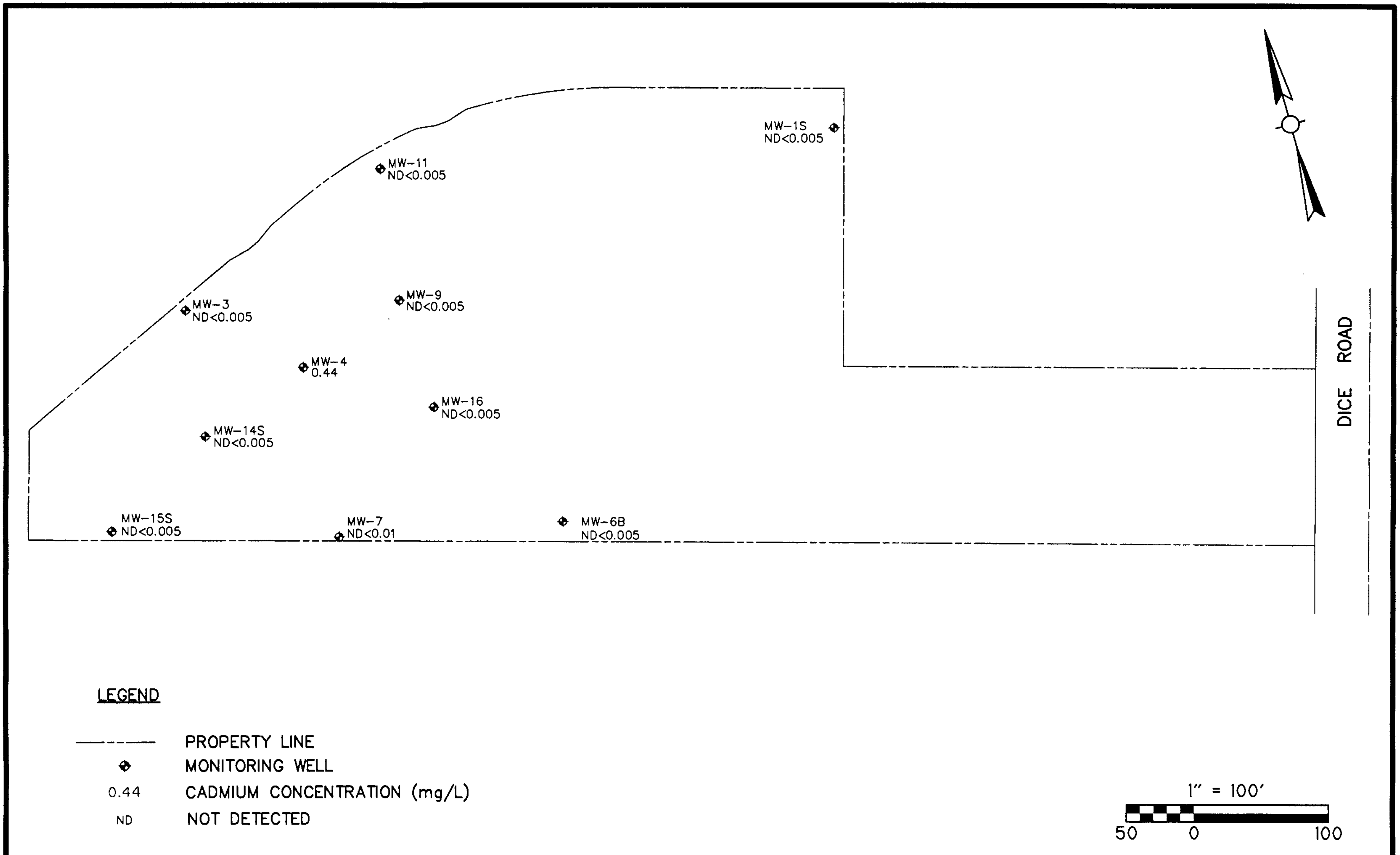


PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Total Chromium vs. Groundwater Level - MW04

CDM

Figure 6-7



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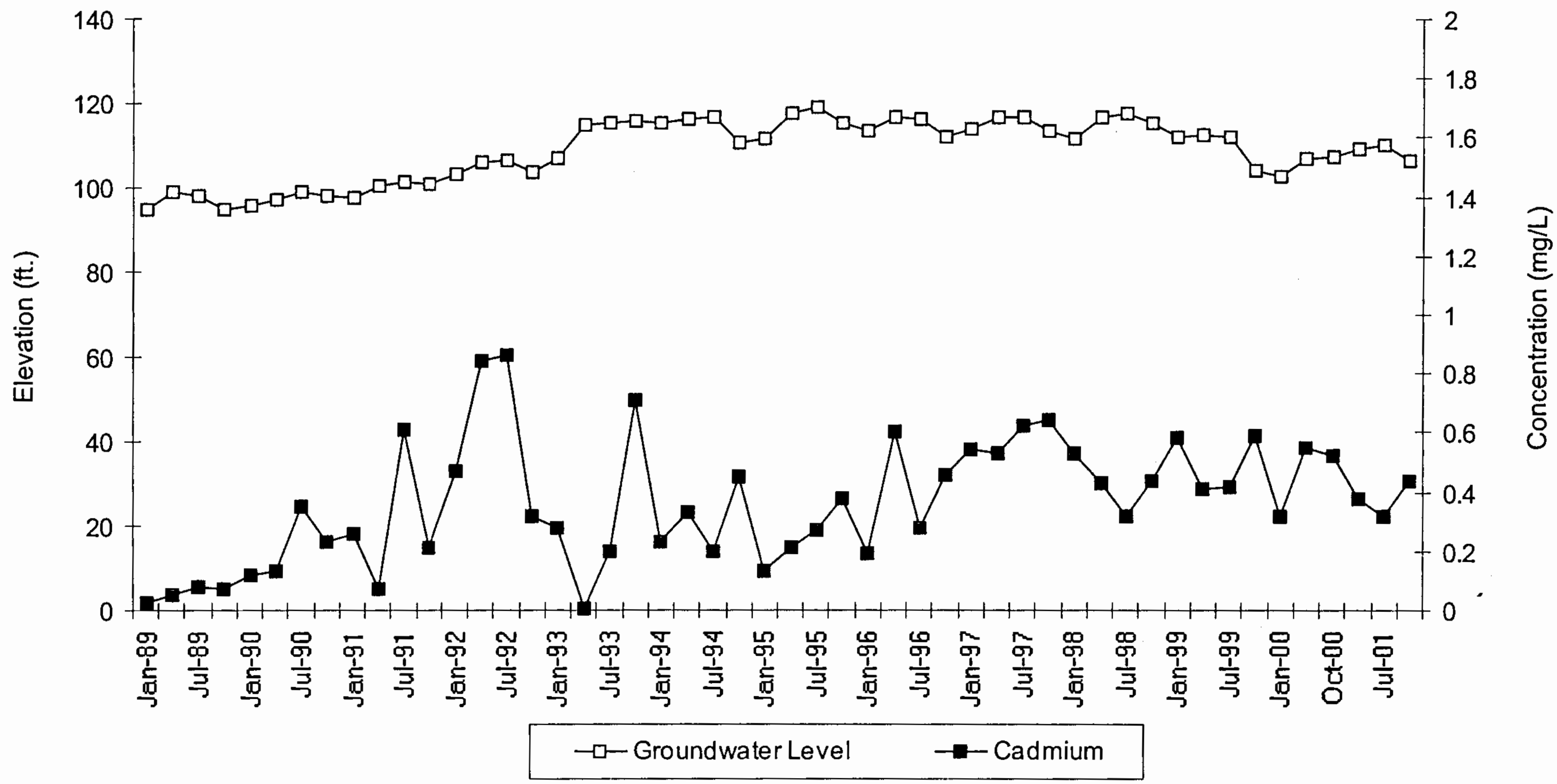
PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Cadmium Concentrations - Shallow Wells
October 2001

CDM

Figure 6-8

I:\2279\2279-111\CAD\2001-4th Qtr\PhiTech-Oct01MWSamp.cdr Cadmium - Negretegd - 01/10/2002

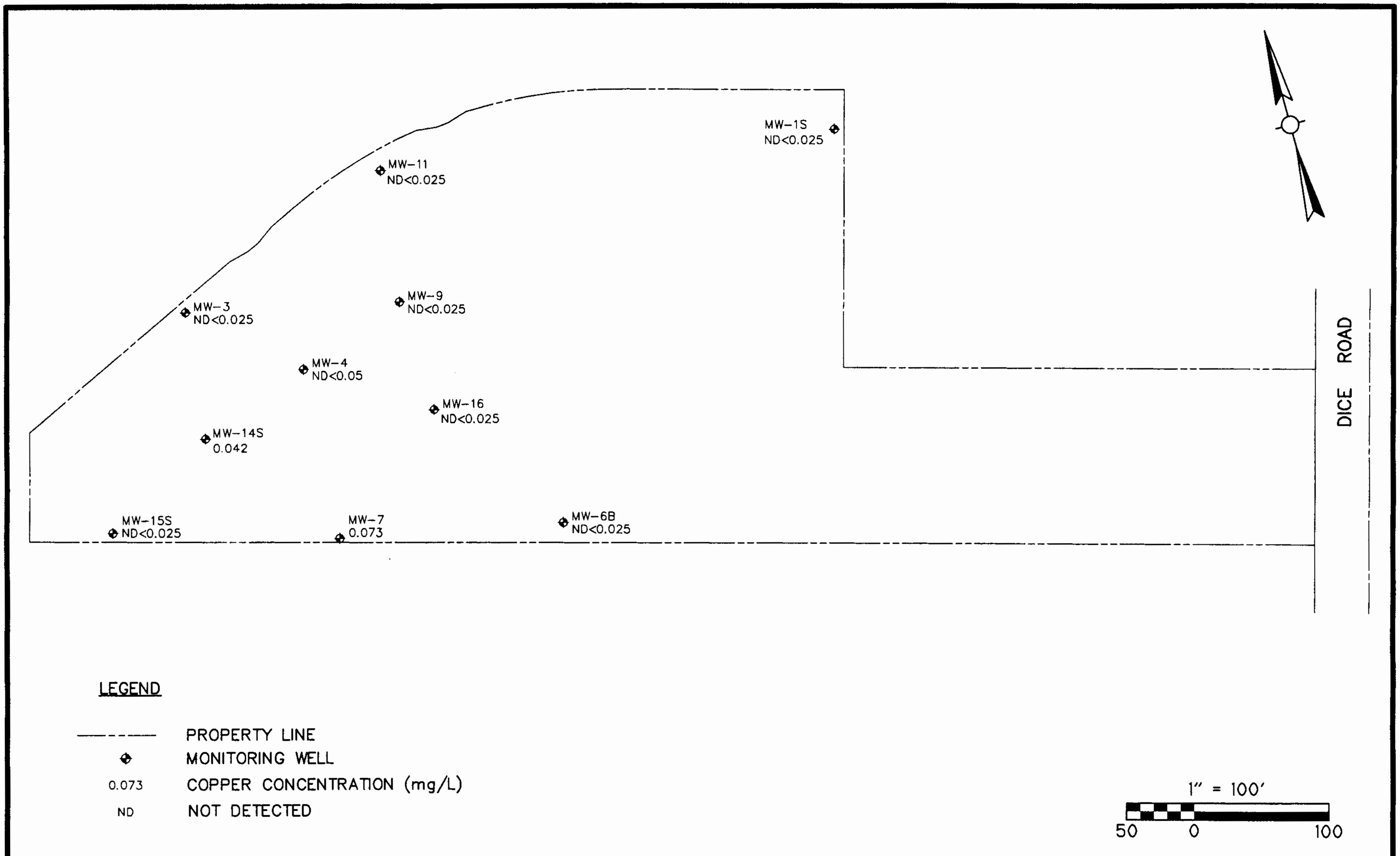


PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Cadmium vs. Groundwater Level - MW04

CDM

Figure 6-9



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PHIBRO-TECH, INC., SANTA FE SPRINGS, CA

Copper Concentrations - Shallow Wells
October 2001

CDM

Figure 6-10

Table 6-1
Phibro-Tech, Inc.
Groundwater Analytical Results - October 2001
Volatile Organic Compounds (VOCs) and 1,4-Dioxane Analytical Summary

Well Number	Sample Date	Sample Type	Benzene (1)	Toluene (150)	Ethyl-benzene (700)	Xylenes, Total (1,750)	PCE (5)	1,1,1-TCA (200)	TCE (5)	1,1-DCE (6)	1,1-DCA (5)	1,2-DCA (0.5)	CCl4 (0.5)	CFM (100)	cis-1,2-DCE (6)	trans-1,2-DCE (10)	MCL (5)	1,4-Dioxane (3#)
MW-14S	10/17/01		2 U	2 U	2.4	2 U	2.4	2 U	170	39	56	6.4	22	23	5.2	2 U	2 U	
MW-15D	7/19/01		1 U	1 U	2.5	1 U	1.8	1 U	2.8	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.95 U
	10/17/01		2.2	1 U	1 U	1 U	2.4	1 U	6.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.95 U
MW-15S	7/19/01		1 U	1 U	1 U	1 U	1.4	1 U	5.1	1 U	1 U	11	2.1	4	1 U	1 U	1 U	
	10/17/01		1 U	1 U	1 U	1 U	1.2	1 U	2.8	1 U	1 U	8.2	2	3.5	1 U	1 U	1 U	
MW-16	7/19/01		2.5 U	2.5 U	2.7	2.5 U	2.5 U	2.5 U	26	7.3	72	160	2.5 U	2.5 U	7.2	2.5 U	2.5 U	
	10/18/01		2 U	2 U	41	2 U	2 U	2 U	34	13	130	49	2 U	2 U	14	2.8	2 U	

Notes:

PCE = Tetrachloroethene; TCE = Trichloroethene; TCA = Trichloroethane; DCE = Dichloroethene; DCA = Dichloroethane; CFM = Chloroform; MCL = Methylene chloride; and CCl4 = Carbon tetrachloride.

California Maximum Contaminant Levels (MCLs) are shown in parenthesis. MCL shown for chloroform is the sum of trihalomethane isomers
= California Action Level.
Samples analyzed by EPA Method 8260.
All concentrations are reported in micrograms per liter (ug/L).
Only compounds detected in one or more samples are listed.
U = Not detected at a concentration greater than the reporting limit shown.

Sample Type:
K = Split sample

Table 6-2
Phibro-Tech, Inc.
Groundwater Analytical Results - October 2001
Metals and pH Analytical Summary

Well Number	Sample Date	Sample Type	pH	Cadmium (0.005)	Chromium (0.05)	Cr (+6)	Copper (1.3)
MW-01D	7/17/01		7.3	0.005 U	0.01 U	0.0055	0.025 U
	10/16/01		7.4	0.005 U	0.01 U	0.002 U	0.025 U
MW-01S	7/17/01		6.6	0.005 U	0.01 U	0.002 U	0.025 U
	10/16/01		6.8	0.005 U	0.01 U	0.0062	0.025 U
MW-03	7/17/01		7	0.005 U	0.01 U	0.002 U	0.025 U
	10/17/01		7.1	0.005 U	0.01 U	0.002 U	0.025 U
MW-04	7/18/01		6.9	0.32	12.6	15	0.025 U
		K	6.8	0.31	11.9	14	0.025 U
	10/18/01		6.9	0.44	39.8	32	0.05 U
		K	6.8	0.4	28.9	33	0.05 U
MW-04A	7/18/01		7.2	0.005 U	0.01 U	0.0055	0.025 U
	10/17/01		7.5	0.005 U	0.01 U	0.0077	0.025 U
MW-06B	7/18/01		7.2	0.005 U	0.01 U	0.0053	0.025 U
	10/17/01		7.5	0.005 U	0.01 U	0.0049	0.025 U
MW-06D	7/18/01		7.3	0.005 U	0.01 U	0.0024	0.025 U
	10/17/01		7.6	0.005 U	0.01 U	0.002 U	0.025 U
MW-07	7/18/01		6.6	0.005 U	0.01 U	0.002 U	0.037
	10/18/01		6.7	0.01 U	0.02 U	0.002 U	0.073
MW-09	7/19/01		7	0.005 U	0.085	0.076	0.025 U
		K	7	0.005 U	0.082	0.085	0.025 U
	10/18/01		6.9	0.005 U	1.3	1.1	0.025 U
		K	6.9	0.005 U	1.4	1.1	0.025 U
MW-11	7/17/01		6.8	0.005 U	0.01 U	0.002 U	0.025 U
	10/18/01		6.7	0.005 U	0.01 U	0.002 U	0.025 U
MW-14S	7/19/01		7.1	0.005 U	0.025	0.0046	0.025 U
	10/17/01		7.2	0.005 U	0.14	0.002 U	0.042
MW-15D	7/19/01		7.3	0.005 U	0.013	0.0081	0.025 U
	10/17/01		7.6	0.005 U	0.01 U	0.002 U	0.025 U
MW-15S	7/19/01		7.2	0.005 U	0.01 U	0.0074	0.025 U
	10/17/01		7.5	0.005 U	0.01 U	0.0088	0.025 U
MW-16	7/19/01		7	0.005 U	0.01 U	0.0031	0.025 U
	10/18/01		7	0.005 U	0.01 U	0.002 U	0.025 U

Table 6-2
Phibro-Tech, Inc.
Groundwater Analytical Results - October 2001
Metals and pH Analytical Summary

Well Number	Sample Date	Sample Type	pH	Cadmium (0.005)	Chromium (0.05)	Cr (+6)	Copper (1.3)

Notes:
California Maximum Contaminant Levels (MCLs) are shown in parenthesis. Secondary MCL is shown for copper.

All concentrations are reported in milligrams per liter (mg/L).
Metals analyzed by EPA Method 6010B, except for Cr (+6), which was analyzed by EPA Method 7199.
pH analyzed by EPA Method 9040B.
U = Not detected at a concentration greater than the reporting limit shown
Analyte not analyzed or not reported if left blank.

Sample Type:

Section 7
Statistical Evaluation

The following sections contain a statistical treatment of the monitoring data designed to determine if on-site wells have been impacted by metals, BTEX compounds (benzene, toluene, ethylbenzene, xylenes) or TCE (trichloroethene). The procedures used are based on the recommendations provided in the 1989 EPA Guidance document, *Statistical Analysis of Ground-water Monitoring Data at RCRA Facilities - Interim Final Guidance* and in the 1992 Addendum document. In some instances, methods which have not been recommended in the documents cited above were used. However, unrecommended techniques were only used to supplement the recommended procedures. When statistical methods outlined in the 1989 guidance document were superseded by the 1992 Addendum, the more recent recommendations were followed.

7.1 Determination of Background Upper Tolerance Limit

Overview

The upper tolerance limit (UTL) is a method that is typically used in compliance monitoring to compare downgradient wells to established maximum contaminant levels (MCLS) or alternate contaminant levels (ACLs). In short, the UTL represents the upper end of the tolerance interval, which is calculated at a specified confidence level and coverage. For instance, a UTL with 95 percent coverage and a 95 percent confidence level represents a value which, with 95 percent confidence, will be exceeded less than 5 percent of the time.

In the present evaluation, we have calculated UTLs for the background well (MW-1S) and compared this value to each individual downgradient analytical result using a confidence level and coverage of 95 percent. When on-site wells exceed the background UTL consistently, it suggests that a significant difference from background may exist. While this is not a recommended technique for detection monitoring, we have applied background UTLs as a screening tool and as a supplement to the more rigorous statistical comparisons that follow.

Methods

Inherent in the calculation of a parametric UTL is the assumption of a normal (or log normal) data distribution. One of the tests for normality recommended in the 1992 Addendum to the EPA guidance document is the probability plot. When a data set is normally distributed, the corresponding probability plot is linear. However, for the background well, the analyses have a high percentage of nondetects for most parameters. Therefore, the probability plots appear to be nonlinear (see Appendix E-3). Fortunately, several methods are available to adjust the mean and standard deviation (used in the calculation of the UTL) based on various treatment of nondetects that allow the use of a parametric UTL. In a parametric UTL, the magnitude of the analyses are considered, while in a nonparametric analysis, the data is ranked from highest to lowest and the UTL is calculated from the ranks. The choice of method depends on the percentage of nondetects in the population and on comparison of special probability plots designed to test the assumptions built into each model. Parametric methods for determination of the UTL are described below. When the percentage of nondetects is above 90 percent, the UTL is calculated using a nonparametric method employing the Poisson model. In the Poisson model, detected values are treated as "rare events," such that the probability of occurrence is low, but constant. The model takes into account both the frequency of occurrence of detected values as well as the magnitude. Since the Poisson model is nonparametric, a normal or log normal data distribution is not required.

When the frequency of detect is greater than 10 percent and data are normally or log normally distributed, either the Atchison or Cohen adjustment is recommended. In the Atchison method, nondetects are assumed to equal zero, and therefore are not considered in the data distribution. In the Cohen adjustment, nondetects are assumed to have finite values between zero and the detection limit. Experience at EPA and USGS (EPA 1992) have shown that, in general, when the frequency of detect (FOD) is between 10 and 50 percent, Atchison's method is more valid; while between 50 and 90 percent FOD, Cohen's method is more valid. However, this is only a rule of thumb that should be verified periodically using the detects-only and censored probability plot method described above.

Results

The frequencies of detection for each parameter in the background well (MW-1S) is provided in Table 7-1. For hexavalent chromium, cadmium, and toluene the FOD was less than 10 percent and the Poisson nonparametric method was used to calculate the UTL. Total chromium, copper, toluene, ethylbenzene, and total xylenes analyses were all between 10 and 50 percent FOD, suggesting that the Atchison adjustment should be employed before calculating the UTL. For trichloroethene (TCE), the data were both normally and log normally distributed (see Appendices E-2 and E-3) and the FOD was 100 percent; therefore, no adjustment was required, and the UTL was calculated directly.

The results of the UTL calculations and the comparison with each on-site well are presented in Table 7-2. Based on the number of analyses above the UTL for each on-site well, MW-3, MW-4, MW-7, MW-9, MW-11, MW-14S, MW-15S and MW-16 appear to differ from background with respect to the BTEX compounds. MW-4, MW-9, and MW-14S also appear to differ from background with respect to total chromium and copper. Note that the comparison of background UTLs to on-site wells described above is not definitive and will only be used in conjunction with the more in-depth statistical approaches that follow.

7.2 Comparison of Background and On-site Wells

Overview

The recommended method for comparing on-site wells to background is the analysis of variance (ANOVA). There are two types of ANOVA C, parametric and nonparametric. In order to use the parametric ANOVA, the data set must be normally or log normally distributed and the group variances must be equal. For the nonparametric approach, neither normality or equal variances are required, however, slightly larger data sets are needed to use a nonparametric method compared to the parametric ANOVA. The minimum number of analyses for the nonparametric test is 9, while for the parametric test, only 6 are required (EPA 1989).

The first assumption (normal or log normal distribution) should be tested using either the Shapiro-Wilk or probability plot method when the sample size is 50 or less. In general, the Shapiro-Wilk test is much more stringent than the probability plot since the method tends to focus on the "tails" of the distribution.

The test for equal group variances suggested in the *Addendum to the Interim Final Guidance* (EPA 1992) is the box plot. In a box plot, the extent of each box represent the 25th and 75th percentiles of the data set. Therefore, a long box tends to represent a larger variance than a short box. EPA (1992) recommends using a nonparametric ANOVA if the length of the largest box is equal to or greater than three times that of the smallest box. Another suggested criteria for a parametric ANOVA is a combined FOD, for both the background and the on-site well under consideration, of greater than 50 percent.

Methods

Normality tests were performed only for TCE, since for the other parameters, the combined FOD was <50 percent, precluding the use of the parametric ANOVA method. Results of the probability plot, and Shapiro-Wilk tests are presented in Table 7-3, while the raw data are in Appendices E-2 and E-3, respectively. Due to the stringent nature of the Shapiro-Wilk test, less weight was given to this test than the probability plots when conflicting results were obtained. Based on Table 7-3 , the TCE data are log normal in all wells except MW-3, MW-4, MW-6B, and MW-15S. The log normal data distribution is typical of environmental data sets where various degrees of dilution have occurred. The lack of normality or log normality precluded the use of a parametric ANOVA for wells MW-3 and MW-9.

In order to test the equal group variances assumption, box plots were constructed for TCE in each well (see Appendix E-4). The results indicate that the background box is less than a the length of the box for well MW-6B, indicating that this well cannot be compared to background using a parametric ANOVA. However, all other wells met the equal variance requirement.

A summary of the ANOVA method used is as follows:

> MW-4, MW-11, MW-14S, MW-15S, and MW-16 for TCE C parametric ANOVA using 2 D.L. for nondetects
>
> All other parameters and wells C nonparametric, Kruskal Wallis Mann Whitney U Test
>
> Note that 2 D.L. was used when the FOD was greater than 85 percent in a single well.

Results

The results of the parametric ANOVA and nonparametric tests are included in Appendices E-5 and E-6, respectively, while a summary is provided in Table 7-4. An "R" indicates that the null hypothesis was rejected, or that the two wells are not the same, while an "A" indicates the null hypothesis was accepted. In general, the results are similar to the UTL comparisons, except well MW-16 appears to differ from background with respect to the BTEX compounds. The results for TCE were obtained using both the normal and log normal assumptions for comparative purposes. The results indicate that, regardless of the data distribution, only well MW-6B was the same as background with respect to TCE. The results have not changed since the July 2001 analysis.

Table 7-1 Percent of Total Samples in Shallow Wells Reported Above the Detection Limit Quarterly Data: January 1989 to October 2001 at Phibro-Tech, Inc.

Parameter	MW-1S	MW-3	MW-4	MW-6B	MW-7	MW-9	W-11	MW-14S	MW-15S	MW-16
Number Samples (n)	50	50	50	46	50	49	50	42	43	37
Metals (mg/L) (%)										
Hexavalent chromium	4.0	4.0	100.0	6.5	4.0	33.3	4.0	52.4	14.0	5.4
Total chromium	10.0	8.0	98.0	23.9	18.0	45.1	12.0	81.0	32.6	5.4
Cadmium	2.0	0	98.0	0	4.0	3.9	0	19.0	18.6	0
Copper	22.0	10.0	27.5	4.3	48.0	9.8	22.0	59.5	11.6	16.2
Aromatics (μg/L) (%)										
Benzene	2.0	10.0	17.6	0	18.0	5.9	0	19.0	0	0
Toluene	8.2	14.3	32.0	35.6	14.3	32.0	38.8	17.1	23.8	16.7
Ethylbenzene	26.0	54.0	86.3	45.7	42.0	66.7	84.0	76.2	55.8	78.4
Total xylenes	28.0	42.0	80.4	41.3	30.0	51.0	68.0	52.4	48.8	43.2
Halocarbons (μg/L) (%)										
Trichloroethene	100.0	96.0	94.1	100.0	100.0	94.1	96.0	100.0	97.7	100.0

% = Percent detected

Table 7-2 Definition of Upper Tolerance Levels in Background Shallow Wells Quarterly Data: January 1989 to October 2001 at Phibro-Tech, Inc.

Parameter	% Detected in Bkgd [1]	Tolerance Limit Method	Upper Tolerance Limit [2]	Upper Tolerance Limit Exceeded								
				MW-3 49 [3]	MW-4 49	MW-6B 45	MW-7 49	MW-9 48	MW-11 49	MW-14S 41	MW-15S 42	MW-16 36
Metals (mg/L)												
Hexavalent chromium	4.0	P	1.00	-	49 [4]	-	-	9	-	1	-	-
Total chromium	10.0	A	0.043	2	51 (1)	1	2	19	-	20 (1)	1	-
Cadmium	2.0	P	0.5	-	14	-	-	-	-	-	-	-
Copper	22.0	A	0.030	4 (1)	14 (8)	3 (1)	20 (2)	5 (1)	8 (1)	16	4	5
Aromatics (µg/L)												
Benzene	2.0	P	24.5	3 (3) [5]	13 (12)	-	-	14 (14)	9 (9)	1 (1)	-	3 (3)
Toluene	8.0	P	1.22	21 (14)	42 (26)	14 (1)	17(11)	40 (24)	40 (21)	18 (12)	11 (2)	24 (19)
Ethylbenzene	26.0	A	2.21	22 (5)	46 (3)	15 (1)	18 (6)	43 (10)	45 (4)	30 (1)	22	30 (3)
Total xylenes	28.0	A	4.64	18 (6)	48 (4)	15 (1)	11 (4)	42 (17)	38 (10)	19 (4)	11	16 (7)
Halocarbons (µg/L)												
Trichloroethene	100.0	T	20.40	39 (1)	51 (3)	10	48	50 (3)	48	38	3	34

1 MW-1S is background shallow well, n = 50
2 In ppm or ppb, as noted for groups
3 Number of samples collected at corresponding well
4 Number of samples that exceed upper tolerance level at corresponding well
5 (6) number of samples exceeding limit that are reported as ND
- = None of samples exceeded the upper tolerance limit
P = Poisson
A = Atchison adjusted
T = Unadjusted limit

Table 7-3 Summary of the Data Distribution for Shallow Wells Using Three Different Methods, Quarterly Data: January 1989 to October 2001 at Phibro-Tech, Inc.

Well	Parameter	With NDs	
		P Plot	Shapiro-Wilk
MW-1S	Copper	R	R
MW-1S	Ethylbenzene	R	R
MW-1S	Total chromium	R	R
MW-1S	Toluene	R	R
MW-1S	Total xylenes	R	R
MW-1S	TCE	N/L	N
MW-11	TCE	L	R
MW-14S	TCE	L	L
MW-15S	TCE	N	R
MW-16	TCE	L	L
MW-3	TCE	N	L
MW-4	TCE	N	N
MW-6B	TCE	N	R
MW-7	TCE	N/L	R
MW-9	TCE	R	R

MW-1S = Background shallow well
L = Lognormal
N = Normal
R = Neither normal or lognormal
N/L = Normal or lognormal distribution can be used

Table 7-4 Comparison of Background and On Site Shallow Wells Quarterly Data: January 1989 to October 2001 at Phibro-Tech, Inc.

Parameter	MW-3	MW-4	MW-6B	MW-7	MW-9	MW-11	MW-14S	MW-15S	MW-16
Metals (mg/L)									
Hexavalent chromium [1]	A	R	A	A	R	A	R	A	A
Total chromium [1]	A	R	R	A	R	A	R	R	A
Cadmium [1]	A	R	A	A	A	A	A	A	A
Copper [1]	A	A	A	R	A	A	R	A	A
Aromatics (μg/L)									
Benzene [1]	R	R	A	R	R	R	R	A	R
Toluene [1]	R	R	R	R	R	R	R	A	R
Ethylbenzene [1]	R	R	R	R	R	R	R	R	R
Total xylenes [1]	R	R	A	A	R	R	R	A	R
Halocarbons (μg/L)									
Trichloroethene [2]	R [3]	R [4]/R [5]	A [3]	R [3]	R/R	R [3]	R/R	R/R	R/R

1 Background to onsite comparison by Mann Whitney U Method, using D.L. for ND, at 95 percent confidence level
2 Background to onsite comparison by one way ANOVA Method using 1/2 D.L. for ND
3 Nonparametric comparison used for TCE
4 Normal Distribution used in comparison
5 Log normal Distribution used in comparison
A Null Hypothesis, that means are equal, is accepted
R Null Hypothesis, that means are equal, is rejected
R/R Null Hypothesis, rejected using parametric (top letter) and nonparametric (bottom letter) tests

Section 8
Assessment of Quarterly Groundwater Monitoring Program Status

In the October 1990 groundwater monitoring report, changes in the quarterly groundwater sampling program were proposed. These changes were first implemented during the April 1991 sampling event and included reducing the number of wells sampled and parameters analyzed in each well. The current groundwater sampling program will only be used as an interim groundwater sampling program, until EPA has selected a remediation alternative from the Corrective Measures Study (CMS). Based on over 16 years of quarterly monitoring at the site, off-site migration of the soluble metals plume has not been observed.

The analytical parameters for the October 2001 quarterly monitoring were as follows:

Wells	Volatile Organic Compounds (EPA 8260)	Chromium, Cadmium, Copper	Hexavalent Chromium	pH	1,4-Dioxane
MW-01S, MW-01D	X, X	X, X	X, X	X, X	X, --
MW-03, MW-04A	X, X	X, X	X, X	X, X	--, X
MW-11 MW-06B	X, X	X, X	X, X	X, X	X, --
MW-06D, MW-07	X, X	X, X	X, X	X, X	X, --
MW-09, MW-04	X, X	X, X	X, X	X, X	X, X
MW-14S, MW-15S	X, X	X, X	X, X	X, X	--, --
MW-15D, MW-16	X, X	X, X	X, X	X, X	X, --

Beginning with the January 1997 sampling event, EPA Method 8010/8020 was replaced with EPA Method 8260. This change was requested by the analytical laboratory, which no longer performs 8010/8020 analysis. Methyl-tertiary-butyl-ether (MTBE) analysis was performed once, in January 1997. Since there were no detections of MTBE in any of the groundwater samples, this analysis was discontinued. Starting with the October 2000 sampling event, the analytical method for hexavalent chromium was changed from EPA Method 7196 to 7199. DTSC requested that selected wells be analyzed for 1,4-Dioxane in July 2001 and October 2001.

Statistical analysis was historically conducted annually. Beginning with the October 1993 sampling event, statistical analysis has been performed on a quarterly basis, as requested by DTSC.

During 2000, three sampling events were performed (January, April and October). Sampling and reporting frequency was changed from quarterly to semi-annual after the April 2000 sampling event. However, quarterly groundwater monitoring resumed in April 2001. During the October 2001 event, 14 on-site wells were sampled and analyzed for volatile organics using EPA Method 8260, chromium, cadmium, copper, hexavalent chromium, and pH. The water levels at the 14 wells sampled, in addition to the remaining unsampled wells (with the exception of MW-02), will also be measured.

Section 9
References

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Appendix A
General Analytical Detection Limits

TABLE A-1
PHIBRO-TECH, INC.
HEAVY METALS AND INORGANICS ANALYSIS
Typical Detection Limits

Method Number	Analytical Parameter	Detection Limit	Units
EPA 6010-L	Antimony	0.06	mg/L
EPA 6010-L	Barium	0.01	mg/L
EPA 6010-L	Beryllium	0.002	mg/L
EPA 6010-L	Cadmium	0.005	mg/L
EPA 6010-L	Chromium	0.01	mg/L
EPA 6010-L	Cobalt	0.01	mg/L
EPA 6010-L	Copper	0.02	mg/L
EPA 6010-L	Lead	0.05	mg/L
EPA 6010-L	Molybdenum	0.02	mg/L
EPA 6010-L	Nickel	0.04	mg/L
EPA 6010-L	Silver	0.01	mg/L
EPA 6010-L	Thallium	0.5	mg/L
EPA 6010-L	Tin	0.1	mg/L
EPA 6010-L	Vanadium	0.01	mg/L
EPA 6010-L	Zinc	0.02	mg/L
EPA 7199	Chromium, Hexavalent	0.002	mg/L
EPA 7061-L	Arsenic	0.005	mg/L
EPA 9012	Cyanide, Total	0.01	mg/L
EPA 7470	Mercury	0.001	mg/L
EPA 300.0	Chloride	5	mg/L
EPA 300.0	Nitrate	0.2	mg/L
EPA 7741-L	Selenium	0.1	mg/L
EPA 376.2	Sulfide, as Sulfur	1.2	mg/L

TABLE A-2
PHIBRO-TECH, INC.
VOLATILE ORGANIC COMPOUNDS
Typical Detection Limits

Method Number	Analytical Parameter	Detection Limit	Units
EPA 8260	Benzene	0.5	µg/L
EPA 8260	Toluene	1.0	µg/L
EPA 8260	Ethylbenzene	1.0	µg/L
EPA 8260	Xylenes, Total	1.0	µg/L
EPA 8260	Chloromethane	1.0	µg/L
EPA 8260	Bromomethane	1.0	µg/L
EPA 8260	Vinyl Chloride	1.0	µg/L
EPA 8260	Chloroethane	1.0	µg/L
EPA 8260	Methylene Chloride	1.0	µg/L
EPA 8260	Trichlorofluoromethane	1.0	µg/L
EPA 8260	1,1-Dichloroethene	1.0	µg/L
EPA 8260	1,1-Dichloroethane	1.0	µg/L
EPA 8260	trans-1,2-Dichloroethene	1.0	µg/L
EPA 8260	Chloroform	1.0	µg/L
EPA 8260	1,2-Dichloroethane	1.0	µg/L
EPA 8260	1,1,1-Trichloroethane	1.0	µg/L
EPA 8260	Carbon Tetrachloride	1.0	µg/L
EPA 8260	Bromodichloromethane	1.0	µg/L
EPA 8260	1,2-Dichloropropane	1.0	µg/L
EPA 8260	trans-1,3-Dichloropropene	1.0	µg/L
EPA 8260	Trichloroethene	1.0	µg/L
EPA 8260	Dibromochloromethane	1.0	µg/L
EPA 8260	1,1,2-Trichloroethane	1.0	µg/L
EPA 8260	cis-1,3-Dichloropropene	1.0	µg/L
EPA 8260	2-Chloroethylvinyl ether	1.0	µg/L
EPA 8260	Bromoform	1.0	µg/L
EPA 8260	Tetrachloroethene	1.0	µg/L
EPA 8260	1,1,2,2-Tetrachloroethane	1.0	µg/L
EPA 8260	Chlorobenzene	1.0	µg/L
EPA 8260	1,2-Dichlorobenzene	1.0	µg/L
EPA 8260	1,3-Dichlorobenzene	1.0	µg/L
EPA 8260	1,4-Dichlorobenzene	1.0	µg/L

Appendix B
Historical Sampling Results

Shallow Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 1S										
Jan-89	96.74	ND < 0.01	0.014	ND < 0.003	ND < 0.009	ND < 0.01	ND < 0.0	ND < 0.0	ND < 0.0	19
Apr-89	100.45	ND < 0.05	0.1	ND < 0.01	ND < 0.02	ND < 0.7	ND < 1.0	ND < 1.0	3.0	23
Jul-89	99.00	ND < 0.05	0.06	0.01	0.03	ND < 0.7	ND < 1.0	ND < 1.0	ND < 1.0	13
Oct-89	96.76	ND < 0.05	ND < 0.02	ND < 0.01	ND < 0.05	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	12
Jan-90	97.73	ND < 0.02	ND < 0.01	ND < 0.01	ND < 0.02	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1.0	16
Apr-90	99.30	ND < 0.02	0.02	ND < 0.0050	0.02	ND < 2.5	ND < 2.5	ND < 2.5	ND < 5.0	20
Jul-90	100.83	ND < 0.02	ND < 0.01	ND < 0.01	0.03	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1.0	18
Oct-90	99.81	ND < 0.02	ND < 0.01	ND < 0.0050	0.023	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	18
Jan-91	99.19	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	26
Apr-91	101.95	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	22
Jul-91	102.94	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	17
Oct-91	102.33	ND < 0.02	0.01	ND < 0.0050	0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	14
Jan-92	104.60	0.10	0.0081	ND < 0.0027	0.04	ND < 1	1.5	1.2	4.3	13
Apr-92	107.28	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	9.9
Jul-92	107.87	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	10
Oct-92	105.53	ND < 0.02	ND < 0.01	ND < 0.0050	0.035	0.95	ND < 1.0	ND < 1.0	ND < 1.0	11
Jan-93	109.82	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	2.2	1.3	5.6	9.2
Apr-93	116.01	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	5.7
Jul-93	116.59	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	1.7	1.7	4.0	11
Oct-93	116.50	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	2.2	4.3	14
Jan-94	116.60	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	9.3
Apr-94	117.10	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	14
Jul-94	117.80	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	7.9
Oct-94	112.23	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	5.8	13
Jan-95	113.59	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	5.2
Apr-95	118.78	ND < 0.02	0.0029	ND < 0.01	ND < 0.02	ND < 0.5	ND < 1.0	1.3	1.0	4.4
Jul-95	120.06	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	1.2	3.5	6.1	6.2
Oct-95	116.48	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	1.7	3.9	15
Jan-96	114.84	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	1.7	5.1	8.4
Apr-96	118.03	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	3.4	4.9	2.9
Jul-96	117.42	ND < 0.01	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	2.2	3.7	9.7
Oct-96	113.85	ND < 0.01	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	2.1	2.8	16
Jan-97	115.73	ND < 0.02	ND < 0.01	ND < 0.0050	0.022	ND < 0.5	ND < 1.0	ND < 1.0	2.0	6.0
Apr-97	118.21	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	1.4	1.2	15
Jul-97	118.18	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	14
Oct-97	114.82	ND < 0.02	ND < 0.01	ND < 0.0050	0.023	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	12
Jan-98	113.23	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	12
Apr-98	118.16	ND < 0.02	ND < 0.01	ND < 0.0050	0.021	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	14
Jul-98	119.12	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	14
Oct-98	116.57	ND < 0.02	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	7.8
Jan-99	113.94	ND < 0.01	ND < 0.01	ND < 0.0050	ND < 0.02	ND < 0.5	ND < 1.0	2.0	ND < 1.0	10
Apr-99	114.01	ND < 0.025	ND < 0.01	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 2.0	7.2
Jul-99	113.62	ND < 0.020	ND < 0.010	ND < 0.0050	0.052	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	9.1
Oct-99	106.70	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 2.0	9.1
Jan-00	102.73	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	9.9
Apr-00	108.83	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	16
Oct-00	109.09	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	8.9
Apr-01	111.58	ND < 0.0020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	13

Shallow Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 3										
Jan-89	95.02	ND < 0.01	0.014	0.003	ND < 0.009	7.4	17.0	4900.0	1500.0	74
Apr-89	99.29	ND < 0.5	0.07	ND < 0.01	ND < 0.02	ND < 50	ND < 50.0	1200.0	60.0	110
Jul-89	98.21	ND < 0.5	0.06	ND < 0.01	ND < 0.02	ND < 7	ND < 10.0	ND < 10.0	ND < 10.0	120
Oct-89	94.75	ND < 0.5	ND < 0.02	ND < 0.01	ND < 0.05	ND < 50	ND < 100.0	1600.0	150.0	ND < 100
Jan-90	95.98	ND < 0.02	ND < 0.01	ND < 0.01	ND < 0.02	ND < 5	ND < 5.0	110.0	ND < 10.0	65
Apr-90	97.72	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 50	ND < 50.0	2100.0	720.0	74
Jul-90	99.27	ND < 0.02	ND < 0.01	ND < 0.01	ND < 0.02	ND < 5	ND < 5.0	ND < 5.0	ND < 10.0	130
Oct-90	97.29	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	9	2.0	ND < 1.0	ND < 1.0	130
Jan-91	97.69	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	38
Apr-91	99.81	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	27
Jul-91	101.63	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	28
Oct-91	100.99	ND < 0.02	ND < 0.01	ND < 0.005	0.03	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	71
Jan-92	103.44	ND < 0.5	0.0081	ND < 0.0027	0.02	ND < 1	ND < 1.0	ND < 1.0	4.0	76
Apr-92	106.04	ND < 0.02	ND < 0.02	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 5.0	25
Jul-92	106.61	ND < 0.02	ND < 0.02	ND < 0.005	0.13	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	76
Oct-92	103.93	ND < 0.02	ND < 0.02	ND < 0.005	0.038	0.52	ND < 1.0	ND < 1.0	ND < 1.0	130
Jan-93	107.28	ND < 0.02	ND < 0.01	ND < 0.005	0.096	ND < 2.5	ND < 5.0	ND < 5.0	ND < 5.0	84
Apr-93	115.17	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	12
Jul-93	115.92	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	3.3	2.6	5.9	16
Oct-93	115.67	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.6	4.8	17
Jan-94	115.59	ND<0.02/0.4**	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	10
Apr-94	116.33	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	15
Jul-94	116.91	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	26
Oct-94	110.85	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	1.2	3.5	1.5	12.0	76
Jan-95	111.83	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	72
Apr-95	117.83	ND < 0.02	0.0023	ND < 0.001	ND < 0.02	ND < 0.5	ND < 1.0	1.3	ND < 1.0	57
Jul-95	119.20	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	2.0	5.2	8.8	9.5
Oct-95	115.45	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	1.7	3.3	30
Jan-96	113.41	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	5.1	26
Apr-96	116.73	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.6	3.6	46
Jul-96	116.33	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.8	9.0	12.0	17
Oct-96	112.45	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	5.4	6.2	21
Jan-97	114.19	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	2.6	1.1	4.2	28
Apr-97	117.13	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	4.3	2.1	3.0	13
Jul-97	117.18	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.5	3.7	13
Oct-97	113.60	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	0.57	ND < 1.0	1.7	1.2	24
Jan-98	111.68	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	1.3	ND < 1.0	25
Apr-98	116.82	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	18
Jul-98	118.02	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	25
Oct-98	115.40	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	24
Jan-99	112.48	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.3	ND < 1.0	26
Apr-99	112.49	ND < 0.025	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1.0	ND < 1.0	1.1	ND < 2.0	21
Jul-99	112.31	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	1.3	ND < 1.0	43
Oct-99	104.42	ND < 0.010	0.017	ND < 0.0050	ND < 0.025	ND < 5.0	ND < 5.0	200	ND < 10	150
Jan-00	100.50	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 2.5	ND < 2.5	54	70	170
Apr-00	107.20	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 2.5	ND < 2.5	65	2.5	170
Oct-00	107.46	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	2	ND < 1.0	43
Apr-01	110.35	0.0007	0.017	ND < 0.0050	ND < 0.025	ND <2.0	ND < 2.0	12	3.1	150

** Hexavalent chromium sample or result for MW03 likely switched with MW30 (duplicate of MW04).

Shallow Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 4										
Jan-89	95.21	33.0	400.0	0.028	ND < 0.009	ND < 0.5	10.0	15.0	29.0	120
Apr-89	99.19	43.0	100.0	0.05	0.02	ND < 5	23.0	15.0	50.0	280
Jul-89	98.19	120.0	98.0	0.08	0.06	ND < 14	ND < 20.0	140.0	40.0	290
Oct-89	94.92	110.0	120.0	0.07	ND < 0.05	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	250
Jan-90	95.87	109.0	95.1	0.12	ND < 0.02	ND < 12	ND < 12.0	ND < 12.0	ND < 25.0	220
Apr-90	97.50	81.7	80.7	0.13	0.02	ND < 10	ND < 10.0	ND < 10.0	ND < 20.0	280
Jul-90	99.20	100.0	101.0	0.35	ND < 0.02	ND < 50	ND < 50.0	1600.0	170.0	320
Oct-90	98.33	58.9	48.4	0.23	0.022	ND < 0.5	17.0	230.0	650.0	250
Jan-91	97.68	49.4	65.3	0.26	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	1200.0	180
Apr-91	100.50	23.8	18.4	0.076	ND < 0.02	ND < 0.5	ND < 1.0	730.0	ND < 1.0	170
Jul-91	101.47	39.1	78.5	0.61	ND < 0.02	ND < 0.5	16000.0	6700.0	18000	190
Oct-91	100.91	42.0	40.8	0.21	ND < 0.01	ND < 0.5	6900.0	4100.0	10000	ND < 400
Jan-92	103.33	41.0	34.0	0.47	0.045	ND < 250	18,000	10,000	17,200	ND < 250
Apr-92	105.94	32.2	29.2	0.84	0.053	6.7	7.2	960.0	1010.0	280
Jul-92	106.5	79.9	59.7	0.86	ND < 0.02	ND < 5	ND < 10.0	200.0	280.0	280
Oct-92	103.92	21.6	27.1	0.32	ND < 0.02	71	ND < 10.0	1300.0	230.0	230
Jan-93	107.13	16.4	27.4	0.28	ND < 0.02	ND < 130	10000.0	10000	19000	ND < 250
Apr-93	115	1.8	2.2	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	88.0	13.0	25
Jul-93	115.52	21.0	23.2	0.2	0.056	0.6	2.0	1.8	11.0	100
Oct-93	115.76	* 35.5/99.2	80.3	0.71	ND < 0.2	1.3	ND < 1.0	ND < 1.0	40.0	290
Jan-94	115.42	0.36	36.0	0.23	ND < 0.02	0.81	ND < 1.0	8.3	14.0	130
Apr-94	116.20	26.9	26.4	0.33	ND < 0.02	ND < 0.5	ND < 1.0	4.0	6.5	190
Jul-94	116.76	59.0	41.4	0.20	0.038	0.58	ND < 1.0	ND < 1.0	4.2	340
Oct-94	110.86	60.7	52.8	0.45	ND < 0.02	ND < 5	ND < 10.0	270.0	39.0	390
Jan-95	111.88	28.8	34.3	0.13	0.026	ND < 5	ND < 10.0	350.0	130.0	190
Apr-95	117.69	8.6	9.1	0.21	0.052	ND < 100	1600.0	1700.0	2900.0	67
Jul-95	119.05	* 28.1/20.8	29.6	0.27	*.10/ND < 0.02	ND < 10	* 270/410	* 260/380	* 890/1300	90
Oct-95	115.35	**30.8	28.9	0.38	ND < 0.02	ND < 2.5	ND < 5.0	75.0	21.0	150
Jan-96	113.37	25.7	32.4	0.19	ND < 0.02	ND < 50	100.0	2100.0	1400.0	160
Apr-96	116.65	* 32.2/24.6	38.0	0.60	ND < 0.02	ND < 25	680.0	1300.0	1400.0	130
Jul-96	116.17	50	58.9	0.28	ND < 0.02	ND < 50	ND < 100.0	1000.0	270.0	140
Oct-96	112.38	63.8	75.7	0.46	ND < 0.04	ND < 50	380.0	1100.0	1900.0	310
Jan-97	114.07	*45.9/34.9	34.5	0.54	0.02	ND < 6.2	ND < 12.0	1100.0	ND < 12.0	330
Apr-97	116.96	27.3	18.8	0.53	ND < 0.02	ND < 12	35.0	1300.0	620.0	150
Jul-97	117.04	36.0	35.2	0.62	ND < 0.02	ND < 5	ND < 10.0	810.0	110.0	150
Oct-97	113.46	73.8	85.3	0.64	ND < 0.08	ND < 5	ND < 10.0	460.0	31.0	230
Jan-98	111.66	39.2	44.0	0.53	ND < 0.02	ND < 5	ND < 10.0	530.0	420.0	180
Apr-98	116.69	7.2	14.1	0.43	ND < 0.02	2.9	ND < 5.0	320.0	ND < 5.0	92
Jul-98	117.95	16.3	18.9	0.32	ND < 0.02	ND < 12	ND < 25.0	1200.0	300.0	120
Oct-98	115.31	34.1	36.2	0.44	0.030	ND < 6.2	ND < 12.0	740.0	240.0	120
Jan-99	112.41	78.6	85.2	0.58	ND < 0.04	ND < 5	ND < 10	520.0	31.0	260
Apr-99	112.43	*0.57/4.6	42.8	0.41	ND < 0.05	3.5	ND < 2.5	220	9.9	190
Jul-99	112.33	41.1	49.7	0.42	ND < 0.050	ND < 10	ND < 10	670	67	140
Oct-99	104.49	58.2	105	0.59	ND < 0.075	ND < 5.0	ND < 5.0	92	11	210
Jan-00	100.66	76.3	60.0	0.32	ND < 0.050	5.1	ND < 2.5	ND < 2.5	6.0	160
Apr-00	107.01	32.9	39.3	0.55	ND < 0.050	ND < 5.0	ND < 5.0	46	8.6	240
Oct-00	107.42	45.6	42.1	0.52	ND < 0.050	ND < 50	2500	2500	ND < 50	170
Apr-01	110.28	11.0	16.8	0.38	ND < 0.025	ND < 50	120	3,100	830	150

* 35.5/99.2 = original sample/duplicate sample (both results presented because duplicate result deviation is >20%)

** Analyzed after holding time had expired.

Shallow Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 6B										
Jan-89	95.12	ND < 0.01	ND < 0.014	ND < 0.003	ND < 0.009	ND < 0.01	ND < 0.0	ND < 0.0	ND < 0.0	57
Apr-89	99.11	ND < 0.05	0.06	ND < 0.01	ND < 0.02	ND < 0.7	ND < 1.0	ND < 1.0	ND < 1.0	37
Jul-89	98.39	ND < 0.05	0.04	ND < 0.01	ND < 0.02	ND < 0.7	ND < 1.0	ND < 1.0	ND < 1.0	29
Oct-89	95.35	ND < 0.05	ND < 0.02	ND < 0.01	ND < 0.05	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	29
Jan-90	96.1	ND < 0.02	ND < 0.01	ND < 0.01	ND < 0.02	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1.0	46
Apr-90	97.76	ND < 0.02	0.02	ND < 0.005	ND < 0.02	ND < 2.5	ND < 2.5	ND < 2.5	ND < 5.0	61
Jul-90	99.28	ND < 0.02	0.02	ND < 0.01	ND < 0.02	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1.0	51
Oct-90	98.45	ND < 0.02	0.012	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	52
Jan-91	97.87	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	59
Apr-92	105.86	ND < 0.02	0.014	ND < 0.005	ND < 0.02	ND < 0.5	ND < 0.5	1.1	0.8	19
Jul-92	106.57	ND < 0.02	0.019	ND < 0.005	0.054	ND < 0.5	ND < 0.5	ND < 1.0	ND < 1.0	10
Oct-92	104.12	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	12.0	2.9	13.0	9.3
Jan-93	107.23	ND < 0.02	0.011	ND < 0.005	0.038	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	6.9
Apr-93	114.64	ND < 0.02	0.014	ND < 0.005	ND < 0.02	ND < 0.5	64.0	26.0	88.0	2.6
Jul-93	115.34	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	2.2	2.0	5.5	2.7
Oct-93	115.46	ND < 0.02	0.011	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	5.9
Jan-94	115.37	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	2.7
Apr-94	116.15	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	2.0
Jul-94	116.67	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.1	ND < 1.0	1.9	2.9
Oct-94	111.13	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.5	ND < 1.0	8.2	1.5
Jan-95	112.19	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1	110.0	89.0	110.0	8.6
Apr-95	117.42	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.6	9.1	6.2	2.3
Jul-95	118.93	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.1	4.0	5.1	8.8
Oct-95	115.45	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	1.0	2.6
Jan-96	113.47	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1	28.0	27.0	53.0	14
Apr-96	116.65	ND < 0.02	0.011	ND < 0.005	ND < 0.02	ND < 1	4.2	37.0	50.0	2.9
Jul-96	116.18	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.3	3.5	2.3
Oct-96	112.66	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.0	2.1	2.8	6.1
Jan-97	114.20	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	4.3	4.3	6.4	5.0
Apr-97	116.95	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	3.6	1.7	ND < 1.0	5.2
Jul-97	117.01	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	6.6
Oct-97	113.71	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	6.4
Jan-98	112.06	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	15.0	32.0	39.0	17.0
Apr-98	116.76	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.6	4.2	6.0	7.7
Jul-98	117.95	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	4.3
Oct-98	114.83	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	9.9
Jan-99	112.74	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	5.0	24.0	29.0	17.0
Apr-99	112.56	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1.0	19	42	33.9	31
Jul-99	112.43	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND <1.0	ND <1.0	1.2	ND < 1.0	8.2
Oct-99	105.04	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	4.8	ND < 1.0	12.0
Jan-00	101.26	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND <1.0	ND <1.0	2.0	ND < 1.0	13.0
Apr-00	107.21	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND <1.0	ND <1.0	1.1	ND < 1.0	7.0
Oct-00	107.55	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	9.2
Apr-01	110.29	0.0051	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	5.9

Shallow Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 7										
Jan-89	89.47	ND < 0.01	ND < 0.014	ND < 0.003	ND < 0.009	ND < 0.5	1.4	1.2	3.6	35
Apr-89	98.83	ND < 0.05	0.02	ND < 0.01	ND < 0.02	ND < 0.7	ND < 1.0	ND < 1.0	ND < 1.0	47
Jul-89	97.90	ND < 0.05	0.03	ND < 0.01	ND < 0.05	ND < 0.7	ND < 1.0	ND < 1.0	ND < 1.0	25
Oct-89	94.72	ND < 0.05	ND < 0.02	ND < 0.01	ND < 0.05	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	44
Jan-90	95.58	ND < 0.02	ND < 0.01	ND < 0.01	ND < 0.02	ND < 2.5	ND < 2.5	ND < 2.5	ND < 5.0	39
Apr-90	97.32	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	ND < 2.5	ND < 2.5	ND < 5.0	46
Jul-90	98.85	ND < 0.02	ND < 0.01	ND < 0.01	ND < 0.02	ND < 1	ND < 1.0	ND < 1.0	ND < 2.0	34
Oct-90	98.02	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	19
Jan-91	97.41	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	1.8
Apr-91	100.06	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	30
Jul-91	101.20	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	53
Oct-91	100.62	ND < 0.02	ND < 0.01	ND < 0.005	0.01	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	54
Jan-92	102.90	0.07	ND < 0.0081	ND < 0.0027	0.14	ND < 1	ND < 1.0	ND < 1.0	ND < 1.0	120
Apr-92	105.54	ND < 0.02	0.013	ND < 0.005	0.032	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	55
Jul-92	103.13	ND < 0.02	0.095	ND < 0.005	0.21	ND < 1	ND < 2.0	ND < 2.0	ND < 2.0	53
Oct-92	103.68	ND < 0.02	0.063	ND < 0.005	0.65	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	98
Jan-93	106.82	ND < 0.02	0.033	ND < 0.005	0.19	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	73
Apr-93	114.54	ND < 0.02	0.011	ND < 0.005	ND < 0.02	ND 1.2	ND < 2.5	90.0	5.6	23
Jul-93	115.14	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 5	ND < 10.0	210.0	ND < 10.0	43
Oct-93	115.23	ND < 0.2	ND < 0.01	ND < 0.005	0.02	0.82	ND < 1.0	7.2	ND < 1.0	44
Jan-94	115.08	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	1.4	ND < 1.0	33.0	ND < 1.0	53
Apr-94	115.88	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND< 2.5	ND < 5.0	200.0	ND < 5.0	96
Jul-94	116.44	ND < 0.02	ND < 0.01	ND < 0.005	0.023	0.88	ND < 1.0	7.7	1.2	140
Oct-94	110.69	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	5.1	5.5	98
Jan-95	111.59	ND < 0.02	ND < 0.01	ND < 0.005	0.026	ND < 0.5	7.0	8.7	10.0	170
Apr-95	117.24	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	1.3	ND < 1.0	26
Jul-95	118.63	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.1	3.4	53
Oct-95	115.08	ND < 0.02	0.014	ND < 0.005	0.079	0.74	ND < 1.0	3.8	1.4	98
Jan-96	112.98	ND < 0.02	ND < 0.01	ND < 0.005	0.043	1.0	4.2	4.9	10.0	85
Apr-96	116.39	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.3	11.0	14.0	37
Jul-96	115.83	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	1.0	ND < 1.0	1.6	2.7	87
Oct-96	112.17	ND < 0.01	ND < 0.01	ND < 0.005	0.036	0.96	ND < 1.0	1.4	1.5	150
Jan-97	113.76	ND < 0.02	ND < 0.01	ND < 0.005	0.029	ND < 0.5	ND < 1.0	1.7	2.8	95
Apr-97	116.62	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.1	1.2	ND < 1.0	63
Jul-97	116.74	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	0.56	ND < 1.0	ND < 1.0	ND < 1.0	54
Oct-97	111.27	ND < 0.02	ND < 0.01	ND < 0.005	0.025	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	85
Jan-98	111.47	ND < 0.02	0.01	ND < 0.005	0.044	ND < 0.5	2.2	5.2	6.8	97
Apr-98	116.38	ND < 0.02	0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	1.6	1.8	23
Jul-98	117.62	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	53
Oct-98	115.06	ND < 0.02	ND < 0.01	ND < 0.005	0.042	0.68	ND < 1.0	ND < 1.0	ND < 1.0	88
Jan-99	112.28	ND < 0.02	ND < 0.01	0.0056	0.05	ND < 1.2	ND < 2.5	ND < 2.5	ND < 2.5	160
Apr-99	112.11	ND < 0.01	ND < 0.01	ND < 0.005	0.042	ND < 2.0	3.0	11	6.8	80
Jul-99	112.09	ND < 0.020	ND < 0.020	ND < 0.010	0.068	ND < 1.0	ND < 1.0	1.3	ND < 1.0	65
Oct-99	104.50	ND < 0.010	ND < 0.010	ND < 0.0050	0.071	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	130
Jan-00	100.67	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	47
Apr-00	106.84	ND < 0.010	ND < 0.010	ND < 0.0050	0.035	ND < 1.0	ND < 1.0	1.2	ND < 1.0	48
Oct-00	107.24	ND < 0.020	ND < 0.010	ND < 0.0050	0.057	ND < 2.5	ND < 2.5	ND < 2.5	ND < 2.5	110
Apr-01	109.98	0.001	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	78

Shallow Wells
PHIBRO-TECH, INC.
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		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW-9										
Jan-89	95.55	0.45	0.33	ND < 0.003	ND < 0.009	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1.0	55
Apr-89	99.67	ND < 0.02	0.06	ND < 0.01	ND < 0.02	ND < 0.7	ND < 1.0	ND < 1.0	ND < 1.0	24
Jul-89	98.77	ND < 0.05	0.17	ND < 0.01	0.02	ND < 0.7	ND < 1.0	ND < 1.0	ND < 1.0	57
Oct-89	95.62	2.5	1.8	ND < 0.01	ND < 0.05	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	110
Jan-90	96.44	2.28	2.2	ND < 0.01	ND < 0.02	ND < 2.5	ND < 2.5	ND < 2.5	ND < 5.0	100
Apr-90	98.26	0.8	0.81	ND < 0.005	ND < 0.02	ND < 2.5	ND < 2.5	ND < 2.5	ND < 5.0	150
Jul-90	99.78	0.03	0.04	ND < 0.01	ND < 0.02	ND < 2.5	ND < 2.5	ND < 2.5	ND < 5.0	64
Oct-90	98.69	0.25	0.19	ND < 0.005	0.062	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	17
Jan-91	98.04	0.124	0.085	ND < 0.005	ND < 0.02	ND < 0.5	6.6	1.4	9.0	26
Apr-91	100.83	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	26
Jul-91	101.88	ND < 0.02	0.027	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	99.0	ND < 1.0	41
Oct-91	101.30	0.05	0.07	ND < 0.005	ND < 0.01	ND < 0.5	ND < 1.0	94.0	ND < 1.0	120
Jan-92	103.62	ND < 0.05	ND < 0.0081	ND < 0.0027	0.031	ND < 1	ND < 1.0	1220.0	92.0	45
Apr-92	106.27	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.05	2800.0	3600.0	6190.0	52
Jul-92	106.93	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.05	34000.0	7900.0	24000	ND < 1000
Oct-92	104.3	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1000	83000.0	13000	58000	ND < 1000
Jan-93	107.56	ND < 0.02	0.057	ND < 0.005	0.053	ND < 50	400.0	3900.0	5300.0	ND < 100
Apr-93	115.26	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 50	5100.0	4000.0	9200.0	110
Jul-93	115.81	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 16	ND < 33.0	160.0	74.0	1100
Oct-93	115.79	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	ND < 5.0	120.0	45.0	390
Jan-94	115.76	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 10	48.0	290.0	220.0	230
Apr-94	116.51	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 500	17000.0	12000	32000	270
Jul-94	117.03	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1000	56000.0	15000	40000	200
Oct-94	111.17	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 500	57000.0	11000	34000	350
Jan-95	112.25	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 250	8200.0	9800.0	2000.0	310
Apr-95	117.92	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 50	ND < 100.0	650.0	480.0	670
Jul-95	119.31	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 10	69.0	780.0	340.0	540
Oct-95	115.67	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 25	110.0	670.0	1900.0	320
Jan-96	113.73	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 50	100.0	4300.0	6100.0	500
Apr-96	117.00	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	3.3	5.5	24.0	22.0	580
Jul-96	116.49	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	4.6	ND < 2.0	42.0	4.3	570
Oct-96	112.73	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 50	ND < 100.0	2900.0	350.0	470
Jan-97	114.46	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	ND < 5.0	ND < 5.0	ND < 5.0	400
Apr-97	117.29	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 5	ND < 10.0	18.0	ND < 10.0	770
Jul-97	117.34	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 25	ND < 50.0	2500.0	860.0	850
Oct-97	113.75	ND < 0.02	0.048	ND < 0.005	ND < 0.02	ND < 25	150.0	1900.0	4800.0	ND < 50
Jan-98	112.06	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 5	ND < 10.0	690.0	260.0	270
Apr-98	117.07	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 5	ND < 10,0	23.0	ND < 10.0	390
Jul-98	118.26	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 12	ND < 25.0	73.0	ND < 25.0	1300
Oct-98	115.49	3.3	1.3	0.0075	0.34	7.4	ND < 12.0	390.0	ND < 12.0	1200
Jan-99	112.68	3.3	2.4	ND < 0.005	ND < 0.02	ND < 6.2	ND < 12.0	100.0	83.0	550
Apr-99	112.77	ND < 0.01	0.64	ND < 0.005	ND < 0.025	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	350
Jul-99	112.57	5.8	5.6	ND < 0.010	ND < 0.050	ND < 25	ND < 25	ND < 25	ND < 25	810
Oct-99	104.91	4.0	4.2	ND < 0.0050	ND < 0.025	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	280
Jan-00	101.15	14.1	13.9	ND < 0.0050	ND < 0.025	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	170
Apr-00	107.56	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	370
Oct-00	107.81	ND < 0.020	0.014	ND < 0.0050	ND < 0.025	ND < 5.0	ND < 5.0	29.0	ND < 5.0	160
Apr-01	110.63	0.0043	0.011	ND < 0.0050	ND < 0.025	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	200

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		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 11										
Jan-89	95.97	ND < 0.01	ND < 0.014	ND < 0.003	ND < 0.009	ND < 0.5	ND < 0.5	43.0	1.5	34
Apr-89	99.85	ND < 0.02	0.04	ND < 0.01	ND < 0.02	ND < 500	7500.0	2600.0	11000	39
Jul-89	98.95	ND < 0.05	ND < 0.02	ND < 0.01	0.13	ND < 7	ND < 10.0	ND < 10.0	90.0	29
Oct-89	95.77	ND < 0.05	ND < 0.02	ND < 0.01	ND < 0.05	ND < 5	ND < 10.0	200.0	ND < 10.0	35
Jan-90	96.72	ND < 0.02	ND < 0.01	ND < 0.01	ND < 0.02	ND < 5	ND < 5.0	83.0	ND < 10.0	46
Apr-90	98.44	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	2.6	370.0	150.0	33
Jul-90	100.00	ND < 0.02	ND < 0.01	ND < 0.01	0.03	ND < 25	440.0	1000.0	760.0	65
Oct-90	98.97	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	15000.0	3000.0	10000	ND < 1
Jan-91	98.29	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	15000.0	4700.0	12000	ND < 1
Apr-91	101.17	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	8500.0	3300.0	7500.0	63
Jul-91	102.19	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	57.0	520.0	220.0	61
Oct-91	101.61	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.01	ND < 0.5	140.0	2000.0	660.0	110
Jan-92	104.09	0.10	ND < 0.0081	ND < 0.0027	0.02	ND < 1	7.3	230.0	26.0	85
Apr-92	106.61	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.01	ND < 0.05	1.7	130.0	2.3	70
Jul-92	107.12	ND < 0.02	0.02	ND < 0.005	0.09	ND < 0.05	ND < 0.1	17.0	ND < 0.1	160
Oct-92	104.55	ND < 0.02	0.011	ND < 0.005	ND < 0.01	ND < 0.05	ND < 0.1	11.0	ND < 0.1	160
Jan-93	108.27	ND < 0.02	0.013	ND < 0.005	0.088	ND < 1.2	ND < 2.5	110.0	ND < 2.5	86
Apr-93	115.6	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.05	ND < 1.0	2.0	ND < 1.0	59
Jul-93	116.07	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.05	2.5	1.8	6.4	230
Oct-93	116.01	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.1	3.1	150
Jan-94	116.03	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.5	2.8	190
Apr-94	116.83	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	80
Jul-94	117.23	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	1.6	180
Oct-94	111.30	ND < 0.02	0.011	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	4.5	ND < 1.0	360
Jan-95	112.53	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 10	660.0	850.0	1100.0	660
Apr-95	118.26	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 50	ND < 100.0	1900.0	1000.0	74
Jul-95	119.51	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	ND < 5.0	160.0	37.0	140
Oct-95	115.80	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	5.8	2.2	180
Jan-96	113.98	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 25	520.0	460.0	1000.0	620
Apr-96	117.37	ND < 0.02	ND < 0.01	ND < 0.005	0.023	ND < 25	160.0	1100.0	1400.0	240
Jul-96	116.75	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 10	ND < 20.0	460.0	290.0	220
Oct-96	112.95	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.9	20.0	8.0	250
Jan-97	114.78	ND < 0.02	ND < 0.01	ND < 0.005	0.029	ND < 0.5	9.4	84.0	88.0	160
Apr-97	117.60	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	ND < 5.0	120.0	8.2	370
Jul-97	117.61	ND < 0.02	ND < 0.01	ND < 0.005	0.15	ND < 2.5	ND < 5.0	8.3	ND < 5.0	240
Oct-97	114.02	ND < 0.02	ND < 0.01	ND < 0.005	0.1	ND < 2.5	ND < 5.0	ND < 5.0	ND < 5.0	350
Jan-98	112.23	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 12	770.0	1800.0	2200.0	390
Apr-98	117.36	ND < 0.02	ND < 0.01	ND < 0.005	0.077	ND < 1.2	63.0	150.0	210.0	180
Jul-98	118.57	ND < 0.02	ND < 0.01	ND < 0.005	0.077	ND < 1.2	ND < 2.5	41.0	4.8	150
Oct-98	115.91	ND < 0.02	ND < 0.01	ND < 0.005	0.041	ND < 5	ND < 10.0	ND < 10.0	ND < 10.0	430
Jan-99	113.05	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 6.2	260.0	750.0	970.0	690
Apr-99	113.14	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 25	670	1600	1270	480
Jul-99	112.88	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 10	ND < 10	85	ND < 10	740
Oct-99	105.05	0.057	0.02	ND < 0.0050	ND < 0.025	ND < 10	ND < 10	480	52	650
Jan-00	101.31	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 12	ND < 12	ND < 12	ND < 12	820
Apr-00	107.91	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 12	ND < 12	55	17	1100
Oct-00	108.06	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 50	ND < 50	ND < 50	ND < 50	2900
Apr-01	110.86	ND < 0.0020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 25	ND < 25	48	ND < 25	1700

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Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	METALS Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	VOLATILE ORGANIC COMPOUNDS Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 14S										
Oct-90	98.07	3.2	2.2	0.018	5.3	ND < 0.5	ND < 1.0	1750.0	ND < 1.0	180
Jan-91	97.38	0.4	0.94	0.007	1	ND < 0.5	ND < 1.0	2800.0	5900.0	108
Apr-91	99.26	0.39	0.41	0.005	0.15	ND < 0.5	ND < 1.0	4100.0	ND < 1.0	84
Jul-91	101.27	0.02	0.31	0.005	0.11	ND < 0.5	ND < 1.0	31.0	ND < 1.0	55
Oct-91	100.66	0.13	0.23	ND < 0.005	0.05	ND < 0.5	ND < 1.0	680.0	ND < 1.0	81
Jan-92	103.08	0.27	0.15	ND < 0.0027	0.093	ND < 1	ND < 1.0	ND < 1.0	ND < 1.0	59
Apr-92	105.70	0.13	0.16	ND < 0.005	0.04	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	56
Jul-92	106.38	0.1	0.33	ND < 0.005	0.56	0.6	ND < 1.0	ND < 1.0	ND < 1.0	44
Oct-92	103.72	0.16	0.54	ND < 0.005	0.72	ND < 1	ND < 1.0	ND < 1.0	ND < 1.0	71
Jan-93	107.00	0.056	0.24	ND < 0.005	0.33	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	56
Apr-93	114.80	ND < 0.02	0.018	ND < 0.005	0.032	ND < 0.5	24.0	40.0	55.0	18
Jul-93	115.36	ND < 0.02	0.20	ND < 0.005	0.023	ND < 0.5	1.3	1.2	3.8	25
Oct-93	115.42	ND < 0.02	0.01	ND < 0.005	0.021	ND < 0.5	ND < 1.0	2.1	3.7	25
Jan-94	115.28	ND < 0.02	0.015	ND < 0.005	0.022	ND < 0.5	ND < 1.0	3.2	1.4	21
Apr-94	116.06	ND < 0.02	0.022	ND < 0.005	ND < 0.020	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	29
Jul-94	116.64	ND < 0.02	0.016	ND < 0.005	ND < 0.020	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	15
Oct-94	110.70	0.035	0.064	ND < 0.005	ND < 0.020	0.53	ND < 1.0	ND < 1.0	ND < 1.0	58
Feb-95	113.10	ND < 0.02	0.016	ND < 0.005	0.020	ND < 50	ND < 100.0	3000.0	690.0	50
Apr-95	117.50	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.020	ND < 5	76.0	120.0	190.0	20
Jul-95	118.93	ND < 0.02	ND < 0.01	0.0055	ND < 0.020	ND < 0.5	2.8	26.0	12.0	22
Oct-95	115.25	0.022	0.046	ND < 0.005	ND < 0.020	ND < 0.5	ND < 1.0	2.1	2.0	35
Jan-96	113.13	ND < 0.02	0.034	ND < 0.005	0.024	ND < 1	4.7	87.0	58.0	42
Apr-96	116.52	0.021	0.028	ND < 0.005	ND < 0.020	ND < 2.5	54.0	120.0	110.0	51
Jul-96	116.04	ND < 0.01	0.069	ND < 0.005	ND < 0.020	0.58	ND < 1.0	20.0	10.0	37
Oct-96	112.22	0.052	0.082	ND < 0.005	ND < 0.020	ND < 0.5	ND < 1.0	13.0	2.9	61
Jan-97	113.85	0.024	0.031	ND < 0.005	ND < 0.020	ND < 2.5	ND < 5.0	470.0	ND < 5.0	90
Apr-97	116.82	ND < 0.02	0.032	0.0053	ND < 0.020	0.58	2.9	91.0	36.0	45
Jul-97	117.21	ND < 0.02	0.016	ND < 0.005	ND < 0.020	ND < 5	ND < 1.0	14.0	1.0	35
Oct-97	113.39	0.1	0.013	ND < 0.005	ND < 0.020	ND < 0.5	ND < 1.0	20.0	1.8	57
Jan-98	111.43	* ND/0.0103	0.018	ND < 0.005	0.020	ND < 0.5	1.1	19.0	5.0	50
Apr-98	116.47	ND < 0.02	0.018	ND < 0.005	0.023	ND < 12	ND < 25.0	1500.0	150.0	38
Jul-98	117.79	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.020	0.51	ND < 1.0	18.0	8.4	18
Oct-98	115.19	0.032	0.044	ND < 0.005	0.027	ND < 1.2	ND < 2.5	120.0	29.0	62
Jan-99	112.31	0.058	0.032	ND < 0.005	ND < 0.020	1.1	ND < 2.0	77.0	64.0	98
Apr-99	112.21	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 12	ND < 12	820	47	84
Jul-99	112.19	ND < 0.020	0.038	ND < 0.0050	0.037	ND < 50	ND < 50	3,000	ND < 50	74
Oct-99	104.31	0.035	0.15	0.006	0.044	2.1	ND < 2.0	120	ND < 2.0	180
Jan-00	100.43	0.11	0.26	0.0094	0.031	ND < 5.0	ND < 5.0	ND < 5.0	ND < 5.0	230
Apr-00	106.91	ND < 0.010	ND < 0.010	ND < 0.0050	0.025	3.2	ND < 2.0	110	ND < 2.0	60
Oct-00	107.06	0.039	0.09	ND < 0.0050	0.087	ND < 5.0	ND < 5.0	230	ND < 5.0	170
Apr-01	110.07	0.057	0.043	ND < 0.0050	0.03	2.1	ND < 2.0	9	ND < 2.0	130

* ND/10.3 = EPA method 7196/EPA Method 218.6 (Sample was analyzed for hexavalent chromium by two methods.)

Shallow Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 15S										
Oct-90	97.71	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	21
Jan-91	97.10	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	4.0	1.6	4.0	13
Apr-91	99.71	ND < 0.02	ND < 0.01	0.011	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	28
Jul-91	100.94	ND < 0.02	ND < 0.01	0.014	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	17
Oct-91	100.35	ND < 0.02	0.01	0.02	0.06	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	13
Jan-92	102.72	ND < 0.051	ND < 0.0081	0.008	0.01	ND < 1	ND < 1.0	ND < 1.0	ND < 1.0	15
Apr-92	105.29	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.01	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	4.1
Jul-92	105.95	ND < 0.02	0.04	0.005	0.27	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	2.9
Oct-92	103.37	ND < 0.02	ND < 0.02	0.0073	0.047	ND < 0.5	ND < 0.5	ND < 0.5	ND < 0.5	ND < 1
Jan-93	106.58	ND < 0.02	0.014	0.0085	0.1	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	9.0
Apr-93	114.41	ND < 0.02	0.013	ND < 0.005	ND < 0.02	ND < 0.5	14.0	10.0	22.0	4.6
Jul-93	115.01	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.2	ND < 1.0	2.4	2.4
Oct-93	115.07	ND < 0.04	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	3.2
Jan-94	114.90	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	1.9
Apr-94	115.72	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	3.1
Jul-94	116.31	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	2.1
Oct-94	110.42	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	6.0
Jan-95	111.14	0.048	0.044	ND < 0.005	ND < 0.02	ND < 1	4.0	64.0	27.0	3.7
Apr-95	117.15	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	60.0	82.0	130.0	2.8
Jul-95	118.61	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	2.5	18.0	12.0	5.2
Oct-95	114.45	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	1.0	ND < 1.0	3.9
Jan-96	112.69	ND < 0.02	0.012	ND < 0.005	ND < 0.02	ND < 0.5	1.8	25.0	22.0	3.8
Apr-96	116.09	ND < 0.02	0.015	ND < 0.005	ND < 0.02	ND < 0.5	13.0	40.0	45.0	2.8
Jul-96	115.69	ND < 0.01	0.014	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	9.7	5.4	3.2
Oct-96	111.81	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	2.9	2.6	5.3
Jan-97	113.42	ND < 0.02	0.01	ND < 0.005	ND < 0.02	ND < 0.5	5.5	69.0	1.0	5.1
Apr-97	116.35	ND < 0.02	0.01	ND < 0.005	ND < 0.02	ND < 0.5	9.3	21.0	8.5	3.3
Jul-97	116.60	ND < 0.02	0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	8.2	1.3	4.1
Oct-97	113.08	ND < 0.02	0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	17.0	1.7	5.2
Jan-98	111.06	* ND/0.0177	0.021	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	12.0	3.7	5.0
Apr-98	116.05	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	60.0	7.2	3.1
Jul-98	117.47	ND < 0.02	0.014	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	10.0	2.9	3.4
Oct-98	114.87	ND < 0.02	0.017	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	45.0	12.0	3.9
Jan-99	111.98	0.024	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	19.0	2.2	7.0
Apr-99	111.85	ND < 0.01	0.013	ND < 0.005	ND < 0.025	ND < 1.0	ND < 1.0	23	2.2	4.2
Jul-99	111.89	ND < 0.020	0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	29	23	3.9
Oct-99	104.07	0.014	0.015	ND < 0.0050	ND < 0.025	ND < 2.0	ND < 2.0	12	ND < 2.0	6.7
Jan-00	100.09	ND < 0.020	ND < 0.010	0.012	ND < 0.025	ND < 1.0	ND < 1.0	9.3	ND < 1.0	25
Apr-00	106.56	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	17
Oct-00	106.82	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	17	ND < 1.0	6.7
Apr-01	109.84	0.0053	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	3

* ND/0.0177 = EPA method 7196/EPA Method 218.6 (Sample was analyzed for hexavalent chromium by two methods.)

Shallow Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		METALS				VOLATILE ORGANIC COMPOUNDS				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 16										
Apr-92	105.99	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.01	ND < 0.5	0.7	1.0	1.6	52
Jul-92	106.7	ND < 0.02	0.03	ND < 0.02	0.35	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	35
Oct-92	104.07	ND < 0.02	0.011	ND < 0.005	0.15	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	72
Jan-93	107.3	ND < 0.02	ND < 0.01	ND < 0.005	0.44	ND < 1.2	ND < 2.5	ND < 2.5	ND < 2.5	51
Apr-93	114.9	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 25	55.0	2300.0	1200.0	42
Jul-93	115.54	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 50	ND < 100.0	3100.0	2000.0	15
Oct-93	115.51	ND < 0.04	ND < 0.01	ND < 0.005	ND < 0.02	ND < 5.0	ND < 10.0	340.0	ND < 10.0	24
Jan-94	115.46	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.02	ND < 20.0	1000.0	ND < 20.0	22
Apr-94	116.25	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 10	ND < 20.0	820.0	ND < 20.0	37
Jul-94	116.78	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 25	ND < 50.0	1300.0	730.0	76
Oct-94	111.02	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.5	2.4	9.7	91
Jan-95	112.08	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	ND < 1.0	ND < 1.0	17
Apr-95	117.60	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 5	16.0	36.0	55.0	34
Jul-95	118.99	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 10	ND < 20.0	* 540/370	ND < 20.0	67
Oct-95	115.45	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	1.8	1.3	60
Jan-96	113.49	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	11.0	9.7	26
Apr-96	116.72	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	9.8	30.0	33.0	36
Jul-96	116.24	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	6.6	3.6	110
Oct-96	112.59	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.02	ND < 5	49.0	130.0	230.0	73
Jan-97	114.18	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1	4.6	23.0	ND < 2.0	32
Apr-97	117.01	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1	ND < 2.0	7.2	2.4	31
Jul-97	117.12	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1.2	ND < 2.5	6.5	ND < 2.5	30
Oct-97	113.66	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	ND < 5.0	8.2	ND < 5.0	53
Jan-98	111.92	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1.0	12.0	ND < 3.8	29
Apr-98	116.79	ND < 0.02	ND < 0.01	ND < 0.005	0.023	ND < 0.5	ND < 1.0	28.0	2.7	29
Jul-98	118.00	ND < 0.02	ND < 0.01	ND < 0.005	0.031	ND < 0.5	ND < 1.0	6.0	1.8	28
Oct-98	115.42	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 2.5	ND <5.0	16.0	ND < 5.0	58
Jan-99	112.68	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 1.0	ND < 2.0	11.0	ND < 2.0	36
Apr-99	112.59	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 2.0	ND < 2.0	6.1	ND < 2.0	39
Jul-99	112.43	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 2.0	ND < 2.0	33	ND < 2.0	29
Oct-99	104.81	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 2.0	ND < 2.0	ND < 2.0	ND < 5.0	42
Jan-00	101.03	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	18
Apr-00	107.25	ND < 0.010	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 2.0	ND < 2.0	ND < 2.0	ND < 2.0	26
Oct-00	107.51	ND < 0.020	ND < 0.010	ND < 0.0050	0.3	ND < 2.5	ND < 2.5	7	ND < 2.5	36
Apr-01	110.34	0.0003	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 2.0	ND < 2.0	39.0	11.6	36

ND = Below detection limit as noted
MSL = Mean Sea Level
* 540/370 = original sample/duplicate sample (both results presented because duplicate result deviation is >20%)

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Deep Wells
PHIBRO-TECH, INC.
July 2001 Monitoring
Historical Results

		Metals				Volatile Organic Compounds				
Monitor Well No. / Date	Groundwater Elevation (Feet MSL)	Hexavalent Chromium (mg/L)	Total Chromium (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-Benzene (ug/L)	Total Xylenes (ug/L)	Trichloroethene (ug/L)
MW - 1D										
Jan-99	114.00	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1	1	ND < 1	2
Apr-99	114.01	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 2	2.1
Jul-99	113.67	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 2	2.7
Oct-99	106.55	0.014	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 1	2
Jan-00	152.60	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 1	7.1
Apr-00	108.84	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	1.7	ND < 1	ND < 1	3.3
Oct-00	108.98	ND < 0.020	ND < 0.010	ND < 0.0050	0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	3.1
Apr-01	111.61	0.0007	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	2.7
MW - 4A										
Jan-99	112.63	0.02	0.025	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1	ND < 1	ND < 1	10
Apr-99	112.58	ND < 0.02	0.012	ND < 0.005	ND < 0.025	ND < 1	ND < 1	2.9	1.7	7
Jul-99	112.46	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	670	67	5.2
Oct-99	104.64	0.017	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 2	4.5
Jan-00	152.46	ND < 0.02	0.015	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 1	4.2
Apr-00	107.30	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 1	8.6
Oct-00	107.48	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	7.4
Apr-01	110.38	0.0056	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	19
MW - 6D										
Jan-99	112.78	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	1.2	5.8	6.4	7.1
Apr-99	112.62	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	4	14	11.5	10
Jul-99	112.43	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	4.4	ND < 2	23
Oct-99	105.10	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	2.9	ND < 2	8.8
Jan-00	150.13	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	1.8	ND < 1	9.2
Apr-00	107.25	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	1	ND < 1	4.3
Oct-00	107.59	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	10
Apr-01	110.31	0.0026	ND < 0.010	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	10
MW -15D										
Jan-99	111.92	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.02	ND < 0.5	ND < 1	15	2.1	5.4
Apr-99	111.81	ND < 0.02	0.35	ND < 0.005	ND < 0.025	ND < 1	ND < 1	12	1.6	25
Jul-99	111.74	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	34	ND < 2	9
Oct-99	103.88	ND < 0.01	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	6	ND < 2	5.1
Jan-00	150.96	ND < 0.02	ND < 0.01	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 1	9.7
Apr-00	106.54	0.016	0.013	ND < 0.005	ND < 0.025	ND < 1	ND < 1	ND < 1	ND < 1	13
Oct-00	106.69	ND < 0.020	ND < 0.010	ND < 0.0050	ND < 0.025	1.8	ND < 1.0	2.9	ND < 1.0	8.7
Apr-01	109.62	0.014	0.025	ND < 0.0050	ND < 0.025	ND < 1.0	ND < 1.0	11	2.1	12

ND = Below detection limit as noted

MSL = Mean Sea Level

* 540/370 = original sample/duplicate sample (both results presented because duplicate result deviation is >20%)   I:\2279\2279-111\SPRDSHTS\01-07\[Jul01.xls]tab6-1(deep)

Appendix C
Severn Trent Laboratories Analytical Reports

SEVERN
TRENT
SERVICES

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705-4808

Tel: 714 258 8610
Fax: 714 258 0921
www.stl-inc.com

October 22, 2001

STL LOT NUMBER: E1J180344
NELAP Certification Number: 01118CA
PO/CONTRACT: 2279-11462-111.FLD

Sharon Wallin
Camp, Dresser, McKee
18881 Von Karman, Suite 650
Irvine, CA 92612

Dear Ms. Wallin,

This report contains the analytical results for the eight samples received under chain of custody by STL Los Angeles on October 18, 2001. These samples are associated with your PTI Santa Fe Springs project.

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page. See Project Receipt Checklist for container temperature and conditions. Temperature reading between 2 to 6 degrees Celsius is considered within acceptable criteria. Any matrix related anomaly is footnoted within the report. The Hexavalent Chromium by 7199 analysis was performed by Del Mar Analytical. See attached report for any related anomaly.

STL Los Angeles certifies that the tests performed at our facility meet all NELAP requirements for parameters for which accreditation is required or available. The case narrative is an integral part of the report. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at (714) 258-8610 extension 309.

Sincerely,

Diane Suzuki
Project Manager
CC: Project File

Page 1 of 000067 total pages in this report.

ACCREDITED IN ACCORDANCE WITH nelac

SEVERN TRENT SERVICES

LOT NUMBER E1J180344

Nonconformance 07-16600

Affected Samples:
E1J180344 (1): PTI-MW4-051
E1J180344 (2): PTI-MW35-051
E1J180344 (4): PTI-MW09-051
E1J180344 (5): PTI-MW37-051
E1J180344 (7): PTI-MW11-051
E1J180344 (8): PTI-EB02-051

Affected Methods:
8270C SIM, 1,4 Dioxane

Case Narrative:
Due to insufficient volume for MS/MSD, a LCS/DCS was prepared to measure accuracy of the batch.

ACCREDITED IN ACCORDANCE WITH nelac

STL LOS ANGELES
PROJECT RECEIPT CHECKLIST

Date: 10/18/01

Quantims Lot #: F1J180344
Quote #: 29756
Client Name: CAMP DRESSER & MCKEE
Project: Phelno Tech
Received by: MLT
Date/Time Received: 10/18/01 1532
Delivered by: ☐Client ☐Airborne ☐Fed Ex ☐DHL ☐Ultra-Ex ☐Rey B. ☐UPS ☒DES ☐Other ______

Initial / Date

Custody Seal Status: ☐Intact ☐Broken ☒None .... MLT 10/18/01
Custody Seal #(s): ______ ☐No Seal # ....
Sample Container(s): ☒STL-LA ☐Client ☐N/A ....
Temperature(s) (COOLER/BLANK) in °C: 9°C (CORRECTED TEMP) 6°C ....
Thermometer Used: ☒IR (Infra-red) A (CF = -3°C) ☐Digital (Probe) ....
Samples: ☒Intact ☐Broken ☐Other ______ ....
Anomalies: ☒No ☐Yes (See Clouseau) ....
Labeled by ....
Labeling checked by ....

Turn Around Time: ☐RUSH-24HR ☐RUSH-48HR ☐RUSH-72HR ☒NORMAL ....
Short-Hold Notification: ☒Ph ☒Wet Chem ☐Metals (Filter/Pres) ☒Encore ☐N/A ...
Outside Analysis(es) (Test/Lab/Date Sent Out):

LEAVE NO BLANK SPACES ; USE N/A

Fraction	1,2	3,6	4,5	7,8							PH
VOAh /*	3	3	3	3							N/A
125mL PBn	1	1	1	1							>12
1L PBn	—	—	—	—							
125mL PB	1	1	1	1							—
500mL PBn	1	1	1	1							<2
1L AG	1	—	1	1							—

h:HCl n:Sodium Hydroxide zn:Zinc Acetate/Sodium Hydroxide s:H2SO4 n:HNO3 nf:HNO3-Field Filtered nfl:HNO3-Lab Filtered
CGJ:Clear Glass Jar CGB:Clear Glass Bottle AGJ:Amber Glass Jar AGB:Amber Glass Bottle PB:Poly Bottle E:Encore Sampler V:VOA

* Number of VOA's w/ Headspace present

LOGGED BY/DATE: Ralph 10/18/01 REVIEWED BY/DATE: [signature] 10/18/01

SEVERN
TRENT
SERVICES

Analytical Report

000008

EXECUTIVE SUMMARY - Detection Highlights

E1J180344

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PTI-MW4-051 10/18/01 08:30 001				
Cadmium	0.44	0.010	mg/L	SW846 6010B
Chromium	39.8	0.020	mg/L	SW846 6010B
1,4-Dioxane	37 Q	3.8	ug/L	SW846 8270C SIM
1,1-Dichloroethane	73	50	ug/L	SW846 8260B
cis-1,2-Dichloroethene	65	50	ug/L	SW846 8260B
Ethylbenzene	3700	50	ug/L	SW846 8260B
Trichloroethene	170	50	ug/L	SW846 8260B
pH	6.9	0.10	No Units	SW846 9040B
PTI-MW35-051 10/18/01 08:30 002				
Cadmium	0.40	0.010	mg/L	SW846 6010B
Chromium	28.9	0.020	mg/L	SW846 6010B
1,4-Dioxane	36 Q	1.9	ug/L	SW846 8270C SIM
1,1-Dichloroethane	90	50	ug/L	SW846 8260B
cis-1,2-Dichloroethene	81	50	ug/L	SW846 8260B
Ethylbenzene	2800	50	ug/L	SW846 8260B
Methylene chloride	59	50	ug/L	SW846 8260B
Trichloroethene	220	50	ug/L	SW846 8260B
pH	6.8	0.10	No Units	SW846 9040B
PTI-MW16-051 10/18/01 09:50 003				
1,1-Dichloroethane	130	2.0	ug/L	SW846 8260B
1,2-Dichloroethane	49	2.0	ug/L	SW846 8260B
1,1-Dichloroethene	13	2.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	14	2.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	2.8	2.0	ug/L	SW846 8260B
Ethylbenzene	41	2.0	ug/L	SW846 8260B
Trichloroethene	34	2.0	ug/L	SW846 8260B
pH	7.0	0.10	No Units	SW846 9040B
PTI-MW09-051 10/18/01 11:15 004				
Chromium	1.3	0.010	mg/L	SW846 6010B
1,4-Dioxane	75 Q	4.8	ug/L	SW846 8270C SIM
Chloroform	110	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	260	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	240	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	89	5.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	15	5.0	ug/L	SW846 8260B
Ethylbenzene	8.1	5.0	ug/L	SW846 8260B
Methylene chloride	69	5.0	ug/L	SW846 8260B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

E1J180344

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PTI-MW09-051 10/18/01 11:15 004				
Tetrachloroethene	6.5	5.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	8.8	5.0	ug/L	SW846 8260B
Trichloroethene	440	5.0	ug/L	SW846 8260B
pH	6.9	0.10	No Units	SW846 9040B
PTI-MW37-051 10/18/01 11:15 005				
Chromium	1.4	0.010	mg/L	SW846 6010B
1,4-Dioxane	88 Q	4.7	ug/L	SW846 8270C SIM
Chloroform	65	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	160	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	250	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	64	5.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	7.6	5.0	ug/L	SW846 8260B
Ethylbenzene	33	5.0	ug/L	SW846 8260B
Methylene chloride	68	5.0	ug/L	SW846 8260B
Trichloroethene	340	5.0	ug/L	SW846 8260B
pH	6.9	0.10	No Units	SW846 9040B
PTI-MW7-051 10/18/01 13:25 006				
Copper	0.073	0.050	mg/L	SW846 6010B
Chloroform	2.8	2.0	ug/L	SW846 8260B
1,1-Dichloroethane	78	2.0	ug/L	SW846 8260B
1,2-Dichloroethane	27	2.0	ug/L	SW846 8260B
1,1-Dichloroethene	16	2.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	36	2.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	4.8	2.0	ug/L	SW846 8260B
Ethylbenzene	2.0	2.0	ug/L	SW846 8260B
Trichloroethene	160	2.0	ug/L	SW846 8260B
pH	6.7	0.10	No Units	SW846 9040B
PTI-MW11-051 10/18/01 14:30 007				
1,4-Dioxane	12	0.95	ug/L	SW846 8270C SIM
Chloroform	50	25	ug/L	SW846 8260B
1,1-Dichloroethane	410	25	ug/L	SW846 8260B
1,1-Dichloroethene	98	25	ug/L	SW846 8260B
cis-1,2-Dichloroethene	51	25	ug/L	SW846 8260B
Ethylbenzene	90	25	ug/L	SW846 8260B
1,1,1-Trichloroethane	27	25	ug/L	SW846 8260B
Trichloroethene	1500	25	ug/L	SW846 8260B
m-Xylene & p-Xylene	97	25	ug/L	SW846 8260B

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EXECUTIVE SUMMARY - Detection Highlights

E1J180344

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PTI-MW11-051 10/18/01 14:30 007				
pH	6.7	0.10	No Units	SW846 9040B
PTI-EB02-051 10/18/01 12:40 008				
Dibromochloromethane	1.0	1.0	ug/L	SW846 8260B
Chloroform	2.0	1.0	ug/L	SW846 8260B
pH	7.2	0.10	No Units	SW846 9040B

METHODS SUMMARY

E1J180344

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
pH Aqueous	SW846 9040B	SW846 9040B
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3005A
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826
8270C (SIM)	SW846 8270C SIM	

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E1J180344

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EMEGR	001	PTI-MW4-051	10/18/01	08:30
EMEGW	002	PTI-MW35-051	10/18/01	08:30
EMEGX	003	PTI-MW16-051	10/18/01	09:50
EMEG2	004	PTI-MW09-051	10/18/01	11:15
EMEG8	005	PTI-MW37-051	10/18/01	11:15
EMEG9	006	PTI-MW7-051	10/18/01	13:25
EMEHC	007	PTI-MW11-051	10/18/01	14:30
EMEHE	008	PTI-EB02-051	10/18/01	12:40

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180344-001	**Work Order #...:**	EMEGR1AG	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 08:30	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1292556	**Analysis Time..:**	15:22		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	**37 Q**	**3.8**	**ug/L**	**1.2**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	59	(30 - 120)
Nitrobenzene-d5	80	(30 - 120)

NOTE(S):

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-001	**Work Order #...:**	EMEGR1AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 08:30	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/23/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1296396	**Analysis Time..:**	02:25		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	50	ug/L	15
Bromodichloromethane	ND	50	ug/L	15
Bromoform	ND	50	ug/L	15
Bromomethane	ND	100	ug/L	50
Carbon tetrachloride	ND	50	ug/L	15
Chlorobenzene	ND	50	ug/L	15
Dibromochloromethane	ND	50	ug/L	20
Chloroethane	ND	100	ug/L	15
Chloroform	ND	50	ug/L	15
Chloromethane	ND	100	ug/L	15
1,2-Dichlorobenzene	ND	50	ug/L	15
1,3-Dichlorobenzene	ND	50	ug/L	15
1,4-Dichlorobenzene	ND	50	ug/L	15
1,1-Dichloroethane	**73**	**50**	**ug/L**	**10**
1,2-Dichloroethane	ND	50	ug/L	20
1,1-Dichloroethene	ND	50	ug/L	15
cis-1,2-Dichloroethene	**65**	**50**	**ug/L**	**15**
trans-1,2-Dichloroethene	ND	50	ug/L	15
1,2-Dichloropropane	ND	50	ug/L	15
cis-1,3-Dichloropropene	ND	50	ug/L	15
trans-1,3-Dichloropropene	ND	50	ug/L	25
Ethylbenzene	**3700**	**50**	**ug/L**	**10**
Methylene chloride	ND	50	ug/L	15
1,1,2,2-Tetrachloroethane	ND	50	ug/L	20
Tetrachloroethene	ND	50	ug/L	15
Toluene	ND	50	ug/L	15
1,1,1-Trichloroethane	ND	50	ug/L	10
1,1,2-Trichloroethane	ND	50	ug/L	15
Trichloroethene	**170**	**50**	**ug/L**	**15**
Trichlorofluoromethane	ND	100	ug/L	15
Vinyl chloride	ND	100	ug/L	15
m-Xylene & p-Xylene	ND	50	ug/L	25
o-Xylene	ND	50	ug/L	10

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	115	(75 - 120)
1,2-Dichloroethane-d4	104	(65 - 130)
Toluene-d8	105	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW35-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180344-002	**Work Order #...:**	EMEGW1AG	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 08:30	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1292556	**Analysis Time..:**	14:20		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	**36 Q**	**1.9**	**ug/L**	**0.63**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	67	(30 - 120)
Nitrobenzene-d5	78	(30 - 120)

NOTE(S):

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW35-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-002	**Work Order #...:**	EMEGW1AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 08:30	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/23/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1296396	**Analysis Time..:**	02:55		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	50	ug/L	15
Bromodichloromethane	ND	50	ug/L	15
Bromoform	ND	50	ug/L	15
Bromomethane	ND	100	ug/L	50
Carbon tetrachloride	ND	50	ug/L	15
Chlorobenzene	ND	50	ug/L	15
Dibromochloromethane	ND	50	ug/L	20
Chloroethane	ND	100	ug/L	15
Chloroform	ND	50	ug/L	15
Chloromethane	ND	100	ug/L	15
1,2-Dichlorobenzene	ND	50	ug/L	15
1,3-Dichlorobenzene	ND	50	ug/L	15
1,4-Dichlorobenzene	ND	50	ug/L	15
1,1-Dichloroethane	**90**	**50**	**ug/L**	**10**
1,2-Dichloroethane	ND	50	ug/L	20
1,1-Dichloroethene	ND	50	ug/L	15
cis-1,2-Dichloroethene	**81**	**50**	**ug/L**	**15**
trans-1,2-Dichloroethene	ND	50	ug/L	15
1,2-Dichloropropane	ND	50	ug/L	15
cis-1,3-Dichloropropene	ND	50	ug/L	15
trans-1,3-Dichloropropene	ND	50	ug/L	25
Ethylbenzene	**2800**	**50**	**ug/L**	**10**
Methylene chloride	**59**	**50**	**ug/L**	**15**
1,1,2,2-Tetrachloroethane	ND	50	ug/L	20
Tetrachloroethene	ND	50	ug/L	15
Toluene	ND	50	ug/L	15
1,1,1-Trichloroethane	ND	50	ug/L	10
1,1,2-Trichloroethane	ND	50	ug/L	15
Trichloroethene	**220**	**50**	**ug/L**	**15**
Trichlorofluoromethane	ND	100	ug/L	15
Vinyl chloride	ND	100	ug/L	15
m-Xylene & p-Xylene	ND	50	ug/L	25
o-Xylene	ND	50	ug/L	10

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	111	(75 - 120)
1,2-Dichloroethane-d4	107	(65 - 130)
Toluene-d8	103	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW16-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-003	**Work Order #...:**	EMEGX1AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 09:50	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/23/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1296396	**Analysis Time..:**	03:25		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	2.0	ug/L	0.60
Bromodichloromethane	ND	2.0	ug/L	0.60
Bromoform	ND	2.0	ug/L	0.60
Bromomethane	ND	4.0	ug/L	2.0
Carbon tetrachloride	ND	2.0	ug/L	0.60
Chlorobenzene	ND	2.0	ug/L	0.60
Dibromochloromethane	ND	2.0	ug/L	0.80
Chloroethane	ND	4.0	ug/L	0.60
Chloroform	ND	2.0	ug/L	0.60
Chloromethane	ND	4.0	ug/L	0.60
1,2-Dichlorobenzene	ND	2.0	ug/L	0.60
1,3-Dichlorobenzene	ND	2.0	ug/L	0.60
1,4-Dichlorobenzene	ND	2.0	ug/L	0.60
1,1-Dichloroethane	**130**	**2.0**	**ug/L**	**0.40**
1,2-Dichloroethane	**49**	**2.0**	**ug/L**	**0.80**
1,1-Dichloroethene	**13**	**2.0**	**ug/L**	**0.60**
cis-1,2-Dichloroethene	**14**	**2.0**	**ug/L**	**0.60**
trans-1,2-Dichloroethene	**2.8**	**2.0**	**ug/L**	**0.60**
1,2-Dichloropropane	ND	2.0	ug/L	0.60
cis-1,3-Dichloropropene	ND	2.0	ug/L	0.60
trans-1,3-Dichloropropene	ND	2.0	ug/L	1.0
Ethylbenzene	**41**	**2.0**	**ug/L**	**0.40**
Methylene chloride	ND	2.0	ug/L	0.60
1,1,2,2-Tetrachloroethane	ND	2.0	ug/L	0.80
Tetrachloroethene	ND	2.0	ug/L	0.60
Toluene	ND	2.0	ug/L	0.60
1,1,1-Trichloroethane	ND	2.0	ug/L	0.40
1,1,2-Trichloroethane	ND	2.0	ug/L	0.60
Trichloroethene	**34**	**2.0**	**ug/L**	**0.60**
Trichlorofluoromethane	ND	4.0	ug/L	0.60
Vinyl chloride	ND	4.0	ug/L	0.60
m-Xylene & p-Xylene	ND	2.0	ug/L	1.0
o-Xylene	ND	2.0	ug/L	0.40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	113	(75 - 120)
1,2-Dichloroethane-d4	120	(65 - 130)
Toluene-d8	102	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW09-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180344-004	**Work Order #...:**	EMEG21AG	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 11:15	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1292556	**Analysis Time..:**	14:40		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	**75 Q**	**4.8**	**ug/L**	**1.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	0.0 NC,SRD	(30 - 120)
Nitrobenzene-d5	0.0 NC,SRD	(30 - 120)

NOTE(S):

NC The recovery and/or RPD were not calculated.

SRD The surrogate recovery was not calculated because the extract was diluted beyond the ability to quantitate a recovery.

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW09-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-004	**Work Order #...:**	EMEG21AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 11:15	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/23/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1296396	**Analysis Time..:**	03:55		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	5.0	ug/L	1.5
Bromodichloromethane	ND	5.0	ug/L	1.5
Bromoform	ND	5.0	ug/L	1.5
Bromomethane	ND	10	ug/L	5.0
Carbon tetrachloride	ND	5.0	ug/L	1.5
Chlorobenzene	ND	5.0	ug/L	1.5
Dibromochloromethane	ND	5.0	ug/L	2.0
Chloroethane	ND	10	ug/L	1.5
Chloroform	**110**	**5.0**	**ug/L**	**1.5**
Chloromethane	ND	10	ug/L	1.5
1,2-Dichlorobenzene	ND	5.0	ug/L	1.5
1,3-Dichlorobenzene	ND	5.0	ug/L	1.5
1,4-Dichlorobenzene	ND	5.0	ug/L	1.5
1,1-Dichloroethane	**260**	**5.0**	**ug/L**	**1.0**
1,2-Dichloroethane	**240**	**5.0**	**ug/L**	**2.0**
1,1-Dichloroethene	**89**	**5.0**	**ug/L**	**1.5**
cis-1,2-Dichloroethene	**15**	**5.0**	**ug/L**	**1.5**
trans-1,2-Dichloroethene	ND	5.0	ug/L	1.5
1,2-Dichloropropane	ND	5.0	ug/L	1.5
cis-1,3-Dichloropropene	ND	5.0	ug/L	1.5
trans-1,3-Dichloropropene	ND	5.0	ug/L	2.5
Ethylbenzene	**8.1**	**5.0**	**ug/L**	**1.0**
Methylene chloride	**69**	**5.0**	**ug/L**	**1.5**
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	2.0
Tetrachloroethene	**6.5**	**5.0**	**ug/L**	**1.5**
Toluene	ND	5.0	ug/L	1.5
1,1,1-Trichloroethane	**8.8**	**5.0**	**ug/L**	**1.0**
1,1,2-Trichloroethane	ND	5.0	ug/L	1.5
Trichloroethene	**440**	**5.0**	**ug/L**	**1.5**
Trichlorofluoromethane	ND	10	ug/L	1.5
Vinyl chloride	ND	10	ug/L	1.5
m-Xylene & p-Xylene	ND	5.0	ug/L	2.5
o-Xylene	ND	5.0	ug/L	1.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	116	(75 - 120)
1,2-Dichloroethane-d4	126	(65 - 130)
Toluene-d8	105	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW37-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180344-005	**Work Order #...:**	EMEG81AG	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 11:15	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1292556	**Analysis Time..:**	15:01		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	**88 Q**	**4.7**	**ug/L**	**1.6**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	0.0 NC,SRD	(30 - 120)
Nitrobenzene-d5	0.0 NC,SRD	(30 - 120)

NOTE(S):

NC The recovery and/or RPD were not calculated.

SRD The surrogate recovery was not calculated because the extract was diluted beyond the ability to quantitate a recovery.

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW37-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-005	**Work Order #...:**	EMEG81AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 11:15	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/23/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1296396	**Analysis Time..:**	04:24		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	5.0	ug/L	1.5
Bromodichloromethane	ND	5.0	ug/L	1.5
Bromoform	ND	5.0	ug/L	1.5
Bromomethane	ND	10	ug/L	5.0
Carbon tetrachloride	ND	5.0	ug/L	1.5
Chlorobenzene	ND	5.0	ug/L	1.5
Dibromochloromethane	ND	5.0	ug/L	2.0
Chloroethane	ND	10	ug/L	1.5
Chloroform	**65**	**5.0**	**ug/L**	**1.5**
Chloromethane	ND	10	ug/L	1.5
1,2-Dichlorobenzene	ND	5.0	ug/L	1.5
1,3-Dichlorobenzene	ND	5.0	ug/L	1.5
1,4-Dichlorobenzene	ND	5.0	ug/L	1.5
1,1-Dichloroethane	**160**	**5.0**	**ug/L**	**1.0**
1,2-Dichloroethane	**250**	**5.0**	**ug/L**	**2.0**
1,1-Dichloroethene	**64**	**5.0**	**ug/L**	**1.5**
cis-1,2-Dichloroethene	**7.6**	**5.0**	**ug/L**	**1.5**
trans-1,2-Dichloroethene	ND	5.0	ug/L	1.5
1,2-Dichloropropane	ND	5.0	ug/L	1.5
cis-1,3-Dichloropropene	ND	5.0	ug/L	1.5
trans-1,3-Dichloropropene	ND	5.0	ug/L	2.5
Ethylbenzene	**33**	**5.0**	**ug/L**	**1.0**
Methylene chloride	**68**	**5.0**	**ug/L**	**1.5**
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	2.0
Tetrachloroethene	ND	5.0	ug/L	1.5
Toluene	ND	5.0	ug/L	1.5
1,1,1-Trichloroethane	ND	5.0	ug/L	1.0
1,1,2-Trichloroethane	ND	5.0	ug/L	1.5
Trichloroethene	**340**	**5.0**	**ug/L**	**1.5**
Trichlorofluoromethane	ND	10	ug/L	1.5
Vinyl chloride	ND	10	ug/L	1.5
m-Xylene & p-Xylene	ND	5.0	ug/L	2.5
o-Xylene	ND	5.0	ug/L	1.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	110	(75 - 120)
1,2-Dichloroethane-d4	128	(65 - 130)
Toluene-d8	101	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW7-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-006	**Work Order #...:**	EMEG91AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 13:25	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/23/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1296396	**Analysis Time..:**	04:54		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	2.0	ug/L	0.60
Bromodichloromethane	ND	2.0	ug/L	0.60
Bromoform	ND	2.0	ug/L	0.60
Bromomethane	ND	4.0	ug/L	2.0
Carbon tetrachloride	ND	2.0	ug/L	0.60
Chlorobenzene	ND	2.0	ug/L	0.60
Dibromochloromethane	ND	2.0	ug/L	0.80
Chloroethane	ND	4.0	ug/L	0.60
Chloroform	**2.8**	**2.0**	**ug/L**	**0.60**
Chloromethane	ND	4.0	ug/L	0.60
1,2-Dichlorobenzene	ND	2.0	ug/L	0.60
1,3-Dichlorobenzene	ND	2.0	ug/L	0.60
1,4-Dichlorobenzene	ND	2.0	ug/L	0.60
1,1-Dichloroethane	**78**	**2.0**	**ug/L**	**0.40**
1,2-Dichloroethane	**27**	**2.0**	**ug/L**	**0.80**
1,1-Dichloroethene	**16**	**2.0**	**ug/L**	**0.60**
cis-1,2-Dichloroethene	**36**	**2.0**	**ug/L**	**0.60**
trans-1,2-Dichloroethene	**4.8**	**2.0**	**ug/L**	**0.60**
1,2-Dichloropropane	ND	2.0	ug/L	0.60
cis-1,3-Dichloropropene	ND	2.0	ug/L	0.60
trans-1,3-Dichloropropene	ND	2.0	ug/L	1.0
Ethylbenzene	**2.0**	**2.0**	**ug/L**	**0.40**
Methylene chloride	ND	2.0	ug/L	0.60
1,1,2,2-Tetrachloroethane	ND	2.0	ug/L	0.80
Tetrachloroethene	ND	2.0	ug/L	0.60
Toluene	ND	2.0	ug/L	0.60
1,1,1-Trichloroethane	ND	2.0	ug/L	0.40
1,1,2-Trichloroethane	ND	2.0	ug/L	0.60
Trichloroethene	**160**	**2.0**	**ug/L**	**0.60**
Trichlorofluoromethane	ND	4.0	ug/L	0.60
Vinyl chloride	ND	4.0	ug/L	0.60
m-Xylene & p-Xylene	ND	2.0	ug/L	1.0
o-Xylene	ND	2.0	ug/L	0.40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	117	(75 - 120)
1,2-Dichloroethane-d4	119	(65 - 130)
Toluene-d8	105	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW11-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180344-007	**Work Order #...:**	EMEHC1AG	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 14:30	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/22/01		
Prep Batch #...:	1292556	**Analysis Time..:**	23:17		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	**12**	**0.95**	**ug/L**	**0.33**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	50	(30 - 120)
Nitrobenzene-d5	71	(30 - 120)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW11-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-007	**Work Order #...:**	EMEHC1AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 14:30	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/23/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1296396	**Analysis Time..:**	05:24		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	25	ug/L	7.5
Bromodichloromethane	ND	25	ug/L	7.5
Bromoform	ND	25	ug/L	7.5
Bromomethane	ND	50	ug/L	25
Carbon tetrachloride	ND	25	ug/L	7.5
Chlorobenzene	ND	25	ug/L	7.5
Dibromochloromethane	ND	25	ug/L	10
Chloroethane	ND	50	ug/L	7.5
Chloroform	**50**	**25**	**ug/L**	**7.5**
Chloromethane	ND	50	ug/L	7.5
1,2-Dichlorobenzene	ND	25	ug/L	7.5
1,3-Dichlorobenzene	ND	25	ug/L	7.5
1,4-Dichlorobenzene	ND	25	ug/L	7.5
1,1-Dichloroethane	**410**	**25**	**ug/L**	**5.0**
1,2-Dichloroethane	ND	25	ug/L	10
1,1-Dichloroethene	**98**	**25**	**ug/L**	**7.5**
cis-1,2-Dichloroethene	**51**	**25**	**ug/L**	**7.5**
trans-1,2-Dichloroethene	ND	25	ug/L	7.5
1,2-Dichloropropane	ND	25	ug/L	7.5
cis-1,3-Dichloropropene	ND	25	ug/L	7.5
trans-1,3-Dichloropropene	ND	25	ug/L	12
Ethylbenzene	**90**	**25**	**ug/L**	**5.0**
Methylene chloride	ND	25	ug/L	7.5
1,1,2,2-Tetrachloroethane	ND	25	ug/L	10
Tetrachloroethene	ND	25	ug/L	7.5
Toluene	ND	25	ug/L	7.5
1,1,1-Trichloroethane	**27**	**25**	**ug/L**	**5.0**
1,1,2-Trichloroethane	ND	25	ug/L	7.5
Trichloroethene	**1500**	**25**	**ug/L**	**7.5**
Trichlorofluoromethane	ND	50	ug/L	7.5
Vinyl chloride	ND	50	ug/L	7.5
m-Xylene & p-Xylene	**97**	**25**	**ug/L**	**12**
o-Xylene	ND	25	ug/L	5.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	116	(75 - 120)
1,2-Dichloroethane-d4	110	(65 - 130)
Toluene-d8	105	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-EB02-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180344-008	**Work Order #...:**	EMEHE1AG	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 12:40	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/22/01		
Prep Batch #...:	1292556	**Analysis Time..:**	23:38		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	ND	0.95	ug/L	0.33

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	73	(30 - 120)
Nitrobenzene-d5	78	(30 - 120)

PHIBRO-TECH, INC.

Client Sample ID: PTI-EB02-051

GC/MS Volatiles

Lot-Sample #...:	E1J180344-008	**Work Order #...:**	EMEHE1AA	**Matrix.........:**	WATER
Date Sampled...:	10/18/01 12:40	**Date Received..:**	10/18/01 15:32	**MS Run #.......:**	1296208
Prep Date......:	10/22/01	**Analysis Date..:**	10/22/01		
Prep Batch #...:	1296396	**Analysis Time..:**	22:26		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	**1.0**	**1.0**	**ug/L**	**0.40**
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	**2.0**	**1.0**	**ug/L**	**0.30**
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.30
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	117	(75 - 120)
1,2-Dichloroethane-d4	107	(65 - 130)
Toluene-d8	107	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4-051

General Chemistry

Lot-Sample #...: E1J180344-001 **Work Order #...:** EMEGR **Matrix.........:** WATER
Date Sampled...: 10/18/01 08:30 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**6.9**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291497**
		Analysis Time..: 17:08		MS Run #.......: 1291271	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW35-051

General Chemistry

Lot-Sample #...: E1J180344-002 **Work Order #...:** EMEGW **Matrix.........:** WATER
Date Sampled...: 10/18/01 08:30 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**6.8**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291497**
		Analysis Time..: 17:12		MS Run #.......: 1291271	MDL............:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW16-051

General Chemistry

Lot-Sample #...: E1J180344-003 **Work Order #...:** EMEGX **Matrix.........:** WATER
Date Sampled...: 10/18/01 09:50 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.0**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291497**
		Analysis Time..: 17:14		MS Run #.......: 1291271	MDL............:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW09-051

General Chemistry

Lot-Sample #...: E1J180344-004 **Work Order #...:** EMEG2 **Matrix.........:** WATER
Date Sampled...: 10/18/01 11:15 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**6.9**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291497**
		Analysis Time..: 17:16		MS Run #.......: 1291271	MDL............:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW37-051

General Chemistry

Lot-Sample #...: E1J180344-005 **Work Order #...:** EMEG8 **Matrix.........:** WATER
Date Sampled...: 10/18/01 11:15 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	6.9	0.10	No Units	SW846 9040B	10/18/01	1291497

Analysis Time..: 17:18 MS Run #.......: 1291271 MDL...........:

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW7-051

General Chemistry

Lot-Sample #...: E1J180344-006 **Work Order #...:** EMEG9 **Matrix.........:** WATER
Date Sampled...: 10/18/01 13:25 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**6.7**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291497**
	Analysis Time..: 17:20			MS Run #.......: 1291271	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW11-051

General Chemistry

Lot-Sample #...: E1J180344-007 **Work Order #...:** EMEHC **Matrix.........:** WATER
Date Sampled...: 10/18/01 14:30 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**6.7**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291497**
	Analysis Time..: 17:22			MS Run #........: 1291271	MDL............:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-EB02-051

General Chemistry

Lot-Sample #...: E1J180344-008 **Work Order #...:** EMEHE **Matrix.........:** WATER
Date Sampled...: 10/18/01 12:40 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.2**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291497**
		Analysis Time..: 17:24		MS Run #.......: 1291271	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4-051

TOTAL Metals

Lot-Sample #...: E1J180344-001 **Matrix.......:** WATER
Date Sampled...: 10/18/01 08:30 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	**0.44**	**0.010**	**mg/L**	**SW846 6010B**	**10/19-10/22/01**	**EMEGR1AC**
		Analysis Time..: 13:07		MS Run #.......: 1295174	MDL...........: 0.0012	
Chromium	**39.8**	**0.020**	**mg/L**	**SW846 6010B**	**10/19-10/22/01**	**EMEGR1AD**
		Analysis Time..: 13:07		MS Run #.......: 1295174	MDL...........: 0.0020	
Copper	ND G	0.050	mg/L	SW846 6010B	10/19-10/22/01	EMEGR1AE
		Analysis Time..: 13:07		MS Run #.......: 1295174	MDL...........: 0.0080	

NOTE(S):

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW35-051

TOTAL Metals

Lot-Sample #...: E1J180344-002 **Matrix.......:** WATER
Date Sampled...: 10/18/01 08:30 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	**0.40**	**0.010**	**mg/L**	**SW846 6010B**	**10/19-10/22/01**	**EMEGW1AC**
		Analysis Time..: 13:15		MS Run #.......: 1295174	MDL...........: 0.0012	
Chromium	**28.9**	**0.020**	**mg/L**	**SW846 6010B**	**10/19-10/22/01**	**EMEGW1AD**
		Analysis Time..: 13:15		MS Run #.......: 1295174	MDL...........: 0.0020	
Copper	ND G	0.050	mg/L	SW846 6010B	10/19-10/22/01	EMEGW1AE
		Analysis Time..: 13:15		MS Run #.......: 1295174	MDL...........: 0.0080	

NOTE(S):

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW16-051

TOTAL Metals

Lot-Sample #...: E1J180344-003 **Matrix.......:** WATER
Date Sampled...: 10/18/01 09:50 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/19-10/20/01	EMEGX1AC
		Analysis Time..: 00:56		MS Run #.......: 1295174	MDL...........: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/19-10/20/01	EMEGX1AD
		Analysis Time..: 00:56		MS Run #.......: 1295174	MDL...........: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/19-10/20/01	EMEGX1AE
		Analysis Time..: 00:56		MS Run #.......: 1295174	MDL...........: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW09-051

TOTAL Metals

Lot-Sample #...: E1J180344-004 **Matrix.......:** WATER
Date Sampled...: 10/18/01 11:15 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/19-10/20/01	EMEG21AC
		Analysis Time..: 01:41		MS Run #.......: 1295174	MDL............: 0.00060	
Chromium	**1.3**	**0.010**	**mg/L**	**SW846 6010B**	**10/19-10/20/01**	**EMEG21AD**
		Analysis Time..: 01:41		MS Run #.......: 1295174	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/19-10/20/01	EMEG21AE
		Analysis Time..: 01:41		MS Run #.......: 1295174	MDL............: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW37-051

TOTAL Metals

Lot-Sample #...: E1J180344-005 **Matrix.......:** WATER
Date Sampled...: 10/18/01 11:15 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/19-10/20/01	EMEG81AC
		Analysis Time..: 01:50		MS Run #.......: 1295174	MDL............: 0.00060	
Chromium	**1.4**	**0.010**	**mg/L**	**SW846 6010B**	**10/19-10/20/01**	**EMEG81AD**
		Analysis Time..: 01:50		MS Run #.......: 1295174	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/19-10/20/01	EMEG81AE
		Analysis Time..: 01:50		MS Run #.......: 1295174	MDL............: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW7-051

TOTAL Metals

Lot-Sample #...: E1J180344-006 **Matrix.......:** WATER
Date Sampled...: 10/18/01 13:25 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	ND G	0.010	mg/L	SW846 6010B	10/19-10/22/01	EMEG91AC
		Analysis Time..: 13:23		MS Run #.......: 1295174	MDL...........: 0.0012	
Chromium	ND G	0.020	mg/L	SW846 6010B	10/19-10/22/01	EMEG91AD
		Analysis Time..: 13:23		MS Run #.......: 1295174	MDL...........: 0.0020	
Copper	**0.073**	**0.050**	**mg/L**	**SW846 6010B**	**10/19-10/22/01**	**EMEG91AE**
		Analysis Time..: 13:23		MS Run #.......: 1295174	MDL...........: 0.0080	

NOTE(S):

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW11-051

TOTAL Metals

Lot-Sample #...: E1J180344-007 **Matrix.......:** WATER
Date Sampled...: 10/18/01 14:30 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/19-10/20/01	EMEHC1AC
		Analysis Time..: 02:06		MS Run #.......: 1295174	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/19-10/20/01	EMEHC1AD
		Analysis Time..: 02:06		MS Run #.......: 1295174	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/19-10/20/01	EMEHC1AE
		Analysis Time..: 02:06		MS Run #.......: 1295174	MDL............: 0.0040	

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Client Sample ID: PTI-EB02-051

TOTAL Metals

Lot-Sample #...: E1J180344-008 **Matrix.......:** WATER
Date Sampled...: 10/18/01 12:40 **Date Received..:** 10/18/01 15:32

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292194						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/19-10/20/01	EMEHE1AC
		Analysis Time..: 02:15		MS Run #.......: 1295174	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/19-10/20/01	EMEHE1AD
		Analysis Time..: 02:15		MS Run #.......: 1295174	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/19-10/20/01	EMEHE1AE
		Analysis Time..: 02:15		MS Run #.......: 1295174	MDL............: 0.0040	

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QA/QC

QC DATA ASSOCIATION SUMMARY

E1J180344

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174
002	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174
003	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174
004	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174
005	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174
006	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174
007	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174
008	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291497	1291271
	WATER	SW846 8260B		1296396	1296208
	WATER	SW846 6010B		1292194	1295174

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: E1J180344 **Work Order #...:** EMG681AA **Matrix.........:** WATER
MB Lot-Sample #: G1J190000-556
Prep Date......: 10/19/01 **Analysis Time..:** 18:25
Analysis Date..: 10/22/01 **Prep Batch #...:** 1292556

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,4-Dioxane	ND	1.0	ug/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	78	(30 - 120)
Nitrobenzene-d5	86	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E1J180344 **Work Order #...:** EMLW61AA **Matrix.........:** WATER
MB Lot-Sample #: E1J230000-396
Prep Date......: 10/22/01 **Analysis Time..:** 20:27
Analysis Date..: 10/22/01 **Prep Batch #...:** 1296396

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	2.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	112	(75 - 120)
1,2-Dichloroethane-d4	102	(65 - 130)
Toluene-d8	105	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: E1J180344 **Matrix.........:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: E1J190000-194 **Prep Batch #...:** 1292194						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/19-10/20/01	EME711AA
		Analysis Time..: 00:24				
Chromium	ND	0.010	mg/L	SW846 6010B	10/19-10/20/01	EME711AC
		Analysis Time..: 00:24				
Copper	ND	0.025	mg/L	SW846 6010B	10/19-10/20/01	EME711AD
		Analysis Time..: 00:24				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: E1J180344 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,4-Dioxane	**10.0**	**4.32**	**ug/L**	**43**		**SW846 8270C SIM**
	10.0	**4.57**	**ug/L**	**46**	**5.6**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: E1J180344 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,4-Dioxane	**43**	**(30 - 120)**			**SW846 8270C SIM**
	46	**(30 - 120)**	**5.6**	**(0-35)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J180344 **Work Order #...:** EMLW61AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J230000-396
Prep Date......: 10/22/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1296396 **Analysis Time..:** 19:27

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	**10.0**	**9.34**	**ug/L**	**93**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.55**	**ug/L**	**96**	**SW846 8260B**
1,1-Dichloroethene	**10.0**	**9.01**	**ug/L**	**90**	**SW846 8260B**
Toluene	**10.0**	**9.74**	**ug/L**	**97**	**SW846 8260B**
Trichloroethene	**10.0**	**9.68**	**ug/L**	**97**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	114	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
Toluene-d8	106	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: E1J180344 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH			Work Order #: EMEKQ1AA	LCS Lot-Sample#: E1J180000-497			
	9.18	9.19	No Units	100	SW846 9040B	10/18/01	1291497
			Analysis Time..: 17:06				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J180344 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E1J190000-194 **Prep Batch #...:** 1292194							
Cadmium	0.0500	0.0510	mg/L	102	SW846 6010B	10/19-10/20/01	EME711AE
			Analysis Time..: 00:31				
Chromium	0.200	0.207	mg/L	103	SW846 6010B	10/19-10/20/01	EME711AF
			Analysis Time..: 00:31				
Copper	0.250	0.251	mg/L	100	SW846 6010B	10/19-10/20/01	EME711AG
			Analysis Time..: 00:31				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J180344 **Work Order #...:** EMLW61AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J230000-396
Prep Date......: 10/22/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1296396 **Analysis Time..:** 19:27

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**93**	**(75 - 120)**	**SW846 8260B**
Chlorobenzene	**96**	**(80 - 120)**	**SW846 8260B**
1,1-Dichloroethene	**90**	**(70 - 130)**	**SW846 8260B**
Toluene	**97**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**97**	**(75 - 130)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	114	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
Toluene-d8	106	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J180344

Matrix.........: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH		Work Order #: EMEKQ1AA	LCS Lot-Sample#: E1J180000-497		
	100	(90 - 110)	SW846 9040B	10/18/01	1291497
		Analysis Time..: 17:06			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J180344 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E1J190000-194 **Prep Batch #...:** 1292194					
Cadmium	102	(80 - 120)	SW846 6010B	10/19-10/20/01	EME711AE
		Analysis Time..: 00:31			
Chromium	103	(85 - 120)	SW846 6010B	10/19-10/20/01	EME711AF
		Analysis Time..: 00:31			
Copper	100	(80 - 120)	SW846 6010B	10/19-10/20/01	EME711AG
		Analysis Time..: 00:31			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J180344 **Matrix.........:** WATER
Date Sampled...: 10/18/01 09:50 **Date Received..:** 10/18/01 15:32

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J180344-003 **Prep Batch #...:** 1292194									
Cadmium									
	ND	0.050	0.0507	mg/L	101		SW846 6010B	10/19-10/20/01	EMEGX1AH
	ND	0.050	0.0506	mg/L	101	0.37	SW846 6010B	10/19-10/20/01	EMEGX1AJ
			Analysis Time..: 01:10						
			MS Run #.......: 1295174						
Chromium									
	ND	0.200	0.208	mg/L	103		SW846 6010B	10/19-10/20/01	EMEGX1AK
	ND	0.200	0.206	mg/L	102	0.72	SW846 6010B	10/19-10/20/01	EMEGX1AL
			Analysis Time..: 01:10						
			MS Run #.......: 1295174						
Copper									
	ND	0.250	0.268	mg/L	107		SW846 6010B	10/19-10/20/01	EMEGX1AM
	ND	0.250	0.269	mg/L	107	0.18	SW846 6010B	10/19-10/20/01	EMEGX1AN
			Analysis Time..: 01:10						
			MS Run #.......: 1295174						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J180344 **Work Order #...:** EMET01AH-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J180379-003 EMET01AJ-MSD
Date Sampled...: 10/18/01 12:30 **Date Received..:** 10/18/01 18:40 **MS Run #.......:** 1296208
Prep Date.......: 10/23/01 **Analysis Date..:** 10/23/01
Prep Batch #...: 1296396 **Analysis Time..:** 05:54

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**ND**	**10.0**	**9.48**	**ug/L**	**95**		**SW846 8260B**
	ND	**10.0**	**9.57**	**ug/L**	**96**	**0.94**	**SW846 8260B**
Chlorobenzene	**ND**	**10.0**	**9.70**	**ug/L**	**97**		**SW846 8260B**
	ND	**10.0**	**9.79**	**ug/L**	**98**	**0.92**	**SW846 8260B**
1,1-Dichloroethene	**ND**	**10.0**	**8.51**	**ug/L**	**85**		**SW846 8260B**
	ND	**10.0**	**8.86**	**ug/L**	**89**	**4.0**	**SW846 8260B**
Toluene	**ND**	**10.0**	**9.60**	**ug/L**	**96**		**SW846 8260B**
	ND	**10.0**	**9.93**	**ug/L**	**99**	**3.4**	**SW846 8260B**
Trichloroethene	**ND**	**10.0**	**10.1**	**ug/L**	**101**		**SW846 8260B**
	ND	**10.0**	**10.2**	**ug/L**	**102**	**0.59**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	118	(75 - 120)
	117	(75 - 120)
1,2-Dichloroethane-d4	115	(65 - 130)
	111	(65 - 130)
Toluene-d8	104	(80 - 130)
	107	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J180344 **Matrix.........:** WATER
Date Sampled...: 10/18/01 09:50 **Date Received..:** 10/18/01 15:32

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J180344-003		**Prep Batch #...:** 1292194					
Cadmium	101	(80 - 120)			SW846 6010B	10/19-10/20/01	EMEGX1AH
	101	(80 - 120)	0.37	(0-20)	SW846 6010B	10/19-10/20/01	EMEGX1AJ
		Analysis Time..: 01:10					
		MS Run #.......: 1295174					
Chromium	103	(85 - 120)			SW846 6010B	10/19-10/20/01	EMEGX1AK
	102	(85 - 120)	0.72	(0-20)	SW846 6010B	10/19-10/20/01	EMEGX1AL
		Analysis Time..: 01:10					
		MS Run #.......: 1295174					
Copper	107	(80 - 120)			SW846 6010B	10/19-10/20/01	EMEGX1AM
	107	(80 - 120)	0.18	(0-20)	SW846 6010B	10/19-10/20/01	EMEGX1AN
		Analysis Time..: 01:10					
		MS Run #.......: 1295174					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J180344 **Work Order #...:** EMET01AH-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J180379-003 EMET01AJ-MSD
Date Sampled...: 10/18/01 12:30 **Date Received..:** 10/18/01 18:40 **MS Run #.......:** 1296208
Prep Date......: 10/23/01 **Analysis Date..:** 10/23/01
Prep Batch #...: 1296396 **Analysis Time..:** 05:54

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**95**	**(75 - 120)**			**SW846 8260B**
	96	**(75 - 120)**	**0.94**	**(0-25)**	**SW846 8260B**
Chlorobenzene	**97**	**(80 - 120)**			**SW846 8260B**
	98	**(80 - 120)**	**0.92**	**(0-25)**	**SW846 8260B**
1,1-Dichloroethene	**85**	**(70 - 130)**			**SW846 8260B**
	89	**(70 - 130)**	**4.0**	**(0-25)**	**SW846 8260B**
Toluene	**96**	**(80 - 120)**			**SW846 8260B**
	99	**(80 - 120)**	**3.4**	**(0-25)**	**SW846 8260B**
Trichloroethene	**101**	**(75 - 130)**			**SW846 8260B**
	102	**(75 - 130)**	**0.59**	**(0-25)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	118	(75 - 120)
	117	(75 - 120)
1,2-Dichloroethane-d4	115	(65 - 130)
	111	(65 - 130)
Toluene-d8	104	(80 - 130)
	107	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J180344 **Work Order #...:** EMEGR-SMP EMEGR-DUP **Matrix.......:** WATER

Date Sampled...: 10/18/01 08:30 **Date Received..:** 10/18/01 15:32

% Moisture.....: **Dilution Factor:** **Initial Wgt/Vol:**

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH						SD Lot-Sample #: E1J180344-001		
	6.9	6.9	No Units	0.29	(0-0.0)	SW846 9040B	10/18/01	1291497

Analysis Time..: 17:08 MS Run Number..: 1291271

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LABORATORY REPORT

Prepared For: STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705

Attention: Diane Suzuki
Project: E1J180344

Sampled: 10/18/01
Received: 10/18/01
Reported: 10/29/01

This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.

CA ELAP Certificate #1197
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Del Mar Analytical, Irvine
Pat Abe
Project Manager

000063

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J180344

Report Number: IKJ0713

Sampled: 10/18/01
Received: 10/18/01

INORGANICS

Analyte	Method	Batch	Reporting Limit mg/l	Sample Result mg/l	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IKJ0713-01 (PT1-MW4-051 - Water)								
Chromium VI	EPA 7199	I1J1833	1.0	**32**	500	10/18/01	10/18/01	
Sample ID: IKJ0713-02 (PT1-MW35-051 - Water)								
Chromium VI	EPA 7199	I1J1833	1.0	**33**	500	10/18/01	10/18/01	
Sample ID: IKJ0713-03 (PT1-MW16-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.0020	**0.0062**	1	10/18/01	10/18/01	
Sample ID: IKJ0713-04 (PT1-MW09-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.050	**1.1**	25	10/18/01	10/18/01	
Sample ID: IKJ0713-05 (PT1-MW37-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.050	**1.1**	25	10/18/01	10/18/01	
Sample ID: IKJ0713-06 (PT1-MW7-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.0020	ND	1	10/18/01	10/18/01	
Sample ID: IKJ0713-07 (PT1-MW11-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.0020	ND	1	10/18/01	10/18/01	
Sample ID: IKJ0713-08 (PT1-EB02-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.0020	ND	1	10/18/01	10/18/01	

Del Mar Analytical, Irvine
Pat Abe
Project Manager

Del Mar Analytical

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J180344

Report Number: IKJ0713

Sampled: 10/18/01
Received: 10/18/01

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: I1J1833 Extracted: 10/18/01										
Blank Analyzed: 10/18/01 (I1J1833-BLK1)										
Chromium VI	ND	0.0020	mg/l							
LCS Analyzed: 10/18/01 (I1J1833-BS1)										
Chromium VI	0.0518	0.0020	mg/l	0.0500		104	90-110			
Matrix Spike Analyzed: 10/18/01 (I1J1833-MS1)					**Source: IKJ0684-03**					
Chromium VI	0.0514	0.0020	mg/l	0.0500	ND	102	70-130			
Matrix Spike Dup Analyzed: 10/18/01 (I1J1833-MSD1)					**Source: IKJ0684-03**					
Chromium VI	0.0509	0.0020	mg/l	0.0500	ND	101	70-130	0.978	15	

Del Mar Analytical, Irvine
Pat Abe
Project Manager

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J180344

Report Number: IKJ0713

Sampled: 10/18/01
Received: 10/18/01

DATA QUALIFIERS AND DEFINITIONS

ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.

NR Not reported.

RPD Relative Percent Difference

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000066

SEVERN TRENT SERVICES

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705-4808

Tel: 714 258 8610
Fax: 714 258 0921
www.stl-inc.com

October 23, 2001

STL LOT NUMBER: E1J160281
NELAP Certification Number: 01118CA
PO/CONTRACT: 2279-11462-111.FLD

Sharon Wallin
Camp, Dresser, McKee
18881 Von Karman, Suite 650
Irvine, CA 92612

Dear Ms. Wallin,

This report contains the analytical results for the three samples received under chain of custody by STL Los Angeles on October 16, 2001. These samples are associated with your PTI - Santa Fe Springs project.

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page. See Project Receipt Checklist for container temperature and conditions. Temperature reading between 2 to 6 degrees Celsius is considered within acceptable criteria. Any matrix related anomaly is footnoted within the report. The Hexavalent Chromium by 7199 analysis was performed by Del Mar Analytical. See attached report for any related anomaly.

STL Los Angeles certifies that the tests performed at our facility meet all NELAP requirements for parameters for which accreditation is required or available. The case narrative is an integral part of the report. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at (714) 258-8610 extension 309.

Sincerely,

Diane Suzuki
Project Manager
CC: Project File

SEVERN TRENT SERVICES

LOT NUMBER E1J160281

Nonconformance 07-16600

Affected Samples:
E1J160281 (1): MW1S-101601

Affected Methods:
8270C SIM, 1,4 Dioxane

Case Narrative:
Due to insufficient volume for MS/MSD, a LCS/DCS was prepared to measure accuracy of the batch.

ACCREDITED IN ACCORDANCE WITH nelac

STL LOS ANGELES
PROJECT RECEIPT CHECKLIST

Date: 10/16/01

Quantims Lot #: E1J160281
Quote #: 29756
Client Name: CDM
Project: PhiboTech
Received by: [illegible]
Date/Time Received: 10/16/01 16:10

Delivered by: ☐ Client ☐ Airborne ☐ Fed Ex ☐ DHL ☐ In-House Courier ☐ Rey B. ☐ UPS ☒ DES ☐ Other ______

Initial / Date

Custody Seal Status: ☒ Intact ☐ Broken ☐ None .... [illegible] 10/16/01
Custody Seal #(s): ______ ☒ No Seal # ....
Sample Container(s): ☐ STL-LA ☐ Client ☐ N/A ....
Temperature(s) (COOLER/BLANK) in °C: 9°C (CORRECTED TEMP) .... 6°C
Thermometer Used: ☒ IR (Infra-red) (A) ☐ Digital (Probe) ....
-3 CF
Samples: ☒ Intact ☐ Broken ☐ Other ______ ....
Anomalies: ☒ No ☐ Yes (See Clouseau) ....
Labeled by ..[illegible]........
Labeling checked by ....

Turn Around Time: ☐ RUSH-24HR ☐ RUSH-48HR ☐ RUSH-72HR ☒ NORMAL ....
Short-Hold Notification: ☐ Ph ☒ Wet Chem ☐ Metals (Filter/Pres) ☐ Encore ☐ N/A ...
Outside Analysis(es) (Test/Lab/Date Sent Out):
8270 SIM to WSAC ....
7199 to Del Mar ....

********* LEAVE NO BLANK SPACES ; USE N/A *********

Fraction	1	2									PH
VOAh /*	3	3									N/A
125ml PB	1	1									—
250ml PB	1	1									—
250ml PBn	1	1									<2
1L AGB	1	—									—

h:HCl | na:Sodium Hydoxide | zana:Zinc Acetate/Sodium Hydroxide | s: H2SO4 | n:HNO3 | n/f:HNO3-Field filtered | n/f/l:HNO3-Lab filtered
CGJ:Clear Glass Jar | CGB:Clear Glass Bottle | AGJ:Amber Glass Jar | AGB:Amber Glass Bottle | PB: Poly Bottle | E:Encore Sampler | V:VOA | SL:Sleeve

*** Number of VOA's w/ Headspace present**

LOGGED BY/DATE: [illegible] 10/16/01 REVIEWED BY/DATE: [illegible] 10/17/01

SEVERN
TRENT
SERVICES

Analytical Report

EXECUTIVE SUMMARY - Detection Highlights

E1J160281

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
MW1S-101601 10/16/01 13:15 001				
1,4-Dioxane	140 Q	9.5	ug/L	SW846 8270C SIM
1,1-Dichloroethane	1.9	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	1.1	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	6.7	1.0	ug/L	SW846 8260B
Trichloroethene	13	1.0	ug/L	SW846 8260B
pH	6.8	0.10	No Units	SW846 9040B
MW1D-101601 10/16/01 14:30 002				
Benzene	1.5	1.0	ug/L	SW846 8260B
Tetrachloroethene	5.3	1.0	ug/L	SW846 8260B
Trichloroethene	3.5	1.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	1.5	1.0	ug/L	SW846 8260B
pH	7.4	0.10	No Units	SW846 9040B

METHODS SUMMARY

E1J160281

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
pH Aqueous	SW846 9040B	SW846 9040B
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3005A
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826
8270C (SIM)	SW846 8270C SIM	

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E1J160281

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EL8T5	001	MW1S-101601	10/16/01	13:15
EL8VG	002	MW1D-101601	10/16/01	14:30
EL8VT	003	TRIP BLANK	10/16/01	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PHIBRO-TECH, INC.

Client Sample ID: MW1S-101601

GC/MS Semivolatiles

Lot-Sample #...:	E1J160281-001	**Work Order #...:**	EL8T51AG	**Matrix.........:**	WATER
Date Sampled...:	10/16/01 13:15	**Date Received..:**	10/16/01 16:10	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/23/01		
Prep Batch #...:	1292556	**Analysis Time..:**	13:38		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	**140 Q**	**9.5**	**ug/L**	**3.1**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	0.0 NC,SRD	(30 - 120)
Nitrobenzene-d5	0.0 NC,SRD	(30 - 120)

NOTE(S):

NC The recovery and/or RPD were not calculated.

SRD The surrogate recovery was not calculated because the extract was diluted beyond the ability to quantitate a recovery.

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

PHIBRO-TECH, INC.

Client Sample ID: MW1S-101601

GC/MS Volatiles

Lot-Sample #...:	E1J160281-001	**Work Order #...:**	EL8T51AA	**Matrix.........:**	WATER
Date Sampled...:	10/16/01 13:15	**Date Received..:**	10/16/01 16:10	**MS Run #.......:**	1290165
Prep Date......:	10/17/01	**Analysis Date..:**	10/17/01		
Prep Batch #...:	1290570	**Analysis Time..:**	19:39		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	**1.9**	**1.0**	**ug/L**	**0.20**
1,2-Dichloroethane	**1.1**	**1.0**	**ug/L**	**0.40**
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	**6.7**	**1.0**	**ug/L**	**0.30**
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**13**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	103	(75 - 120)
1,2-Dichloroethane-d4	104	(65 - 130)
Toluene-d8	98	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: MW1D-101601

GC/MS Volatiles

Lot-Sample #...:	E1J160281-002	**Work Order #...:**	EL8VG1AA	**Matrix.........:**	WATER
Date Sampled...:	10/16/01 14:30	**Date Received..:**	10/16/01 16:10	**MS Run #.......:**	1290165
Prep Date......:	10/17/01	**Analysis Date..:**	10/17/01		
Prep Batch #...:	1290570	**Analysis Time..:**	20:09		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	**1.5**	**1.0**	**ug/L**	**0.30**
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	**5.3**	**1.0**	**ug/L**	**0.30**
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**3.5**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	**1.5**	**1.0**	**ug/L**	**0.50**
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
1,2-Dichloroethane-d4	99	(65 - 130)
Toluene-d8	92	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: E1J160281-003 **Work Order #...:** EL8VT1AA **Matrix.........:** WATER
Date Sampled...: 10/16/01 **Date Received..:** 10/16/01 16:10 **MS Run #.......:** 1290165
Prep Date......: 10/17/01 **Analysis Date..:** 10/17/01
Prep Batch #...: 1290570 **Analysis Time..:** 18:08
Method.........: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.30
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	95	(65 - 130)
Toluene-d8	92	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: **MW1S-101601**

General Chemistry

Lot-Sample #...: E1J160281-001 **Work Order #...:** EL8T5 **Matrix.........:** WATER
Date Sampled...: 10/16/01 13:15 **Date Received..:** 10/16/01 16:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**6.8**	**0.10**	**No Units**	**SW846 9040B**	**10/16/01**	**1289558**
	Analysis Time..: 17:06			MS Run #.......: 1289263	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: MW1D-101601

General Chemistry

Lot-Sample #...: E1J160281-002 **Work Order #...:** EL8VG **Matrix.........:** WATER
Date Sampled...: 10/16/01 14:30 **Date Received..:** 10/16/01 16:10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.4**	**0.10**	**No Units**	**SW846 9040B**	**10/16/01**	**1289558**
	Analysis Time..: 17:12			MS Run #.......: 1289263	MDL............:	

PHIBRO-TECH, INC.

Client Sample ID: MW1S-101601

TOTAL Metals

Lot-Sample #...: E1J160281-001 **Matrix.......:** WATER
Date Sampled...: 10/16/01 13:15 **Date Received..:** 10/16/01 16:10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1290238						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/17-10/18/01	EL8T51AC
		Analysis Time..: 16:27		MS Run #.......: 1290110	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/17-10/18/01	EL8T51AD
		Analysis Time..: 16:27		MS Run #.......: 1290110	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/17-10/18/01	EL8T51AE
		Analysis Time..: 16:27		MS Run #.......: 1290110	MDL............: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: MW1D-101601

TOTAL Metals

Lot-Sample #...: E1J160281-002 **Matrix.......:** WATER
Date Sampled...: 10/16/01 14:30 **Date Received..:** 10/16/01 16:10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1290238						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/17-10/18/01	EL8VG1AC
		Analysis Time..: 17:17		MS Run #.......: 1290110	MDL...........: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/17-10/18/01	EL8VG1AD
		Analysis Time..: 17:17		MS Run #.......: 1290110	MDL...........: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/17-10/18/01	EL8VG1AE
		Analysis Time..: 17:17		MS Run #.......: 1290110	MDL...........: 0.0040	

SEVERN TRENT SERVICES

QA/QC

QC DATA ASSOCIATION SUMMARY

E1J160281

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1289558	1289263
	WATER	SW846 8260B		1290570	1290165
	WATER	SW846 6010B		1290238	1290110
002	WATER	SW846 9040B		1289558	1289263
	WATER	SW846 8260B		1290570	1290165
	WATER	SW846 6010B		1290238	1290110
003	WATER	SW846 8260B		1290570	1290165

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E1J160281 **Work Order #...:** EMA5G1AA **Matrix.........:** WATER
MB Lot-Sample #: E1J170000-570
Prep Date......: 10/17/01 **Analysis Time..:** 10:38
Analysis Date..: 10/17/01 **Prep Batch #...:** 1290570

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	2.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(75 - 120)
1,2-Dichloroethane-d4	92	(65 - 130)
Toluene-d8	93	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: E1J160281 **Work Order #...:** EMG681AA **Matrix.........:** WATER
MB Lot-Sample #: G1J190000-556
Prep Date......: 10/19/01 **Analysis Time..:** 18:25
Analysis Date..: 10/22/01 **Prep Batch #...:** 1292556

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,4-Dioxane	ND	1.0	ug/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	78	(30 - 120)
Nitrobenzene-d5	86	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: E1J160281 **Matrix.........:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: E1J170000-238 **Prep Batch #...:** 1290238						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/17-10/18/01	EL9DA1AA
		Analysis Time..: 16:10				
Chromium	ND	0.010	mg/L	SW846 6010B	10/17-10/18/01	EL9DA1AC
		Analysis Time..: 16:10				
Copper	ND	0.025	mg/L	SW846 6010B	10/17-10/18/01	EL9DA1AD
		Analysis Time..: 16:10				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: E1J160281 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,4-Dioxane	**10.0**	**4.32**	**ug/L**	**43**		**SW846 8270C SIM**
	10.0	**4.57**	**ug/L**	**46**	**5.6**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: E1J160281 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,4-Dioxane	**43**	**(30 - 120)**			**SW846 8270C SIM**
	46	**(30 - 120)**	**5.6**	**(0-35)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J160281 **Work Order #...:** EMA5G1AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J170000-570
Prep Date......: 10/17/01 **Analysis Date..:** 10/17/01
Prep Batch #...: 1290570 **Analysis Time..:** 10:08

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	**10.0**	**9.55**	**ug/L**	**96**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.44**	**ug/L**	**94**	**SW846 8260B**
1,1-Dichloroethene	**10.0**	**9.07**	**ug/L**	**91**	**SW846 8260B**
Toluene	**10.0**	**9.29**	**ug/L**	**93**	**SW846 8260B**
Trichloroethene	**10.0**	**9.68**	**ug/L**	**97**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	91	(75 - 120)
1,2-Dichloroethane-d4	89	(65 - 130)
Toluene-d8	90	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: E1J160281 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH			Work Order #: EL8V91AA	LCS Lot-Sample#: E1J160000-558			
	9.18	9.21	No Units	100	SW846 9040B	10/16/01	1289558
			Analysis Time..: 17:03				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J160281 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E1J170000-238 **Prep Batch #...:** 1290238							
Cadmium	0.0500	0.0541	mg/L	108	SW846 6010B	10/17-10/18/01	EL9DA1AE
			Analysis Time..: 16:18				
Chromium	0.200	0.227	mg/L	113	SW846 6010B	10/17-10/18/01	EL9DA1AF
			Analysis Time..: 16:18				
Copper	0.250	0.268	mg/L	107	SW846 6010B	10/17-10/18/01	EL9DA1AG
			Analysis Time..: 16:18				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J160281 **Work Order #...:** EMA5G1AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J170000-570
Prep Date......: 10/17/01 **Analysis Date..:** 10/17/01
Prep Batch #...: 1290570 **Analysis Time..:** 10:08

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**96**	**(75 - 120)**	**SW846 8260B**
Chlorobenzene	**94**	**(80 - 120)**	**SW846 8260B**
1,1-Dichloroethene	**91**	**(70 - 130)**	**SW846 8260B**
Toluene	**93**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**97**	**(75 - 130)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	91	(75 - 120)
1,2-Dichloroethane-d4	89	(65 - 130)
Toluene-d8	90	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J160281 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH		Work Order #: EL8V91AA LCS Lot-Sample#: E1J160000-558			
	100	(90 - 110)	SW846 9040B	10/16/01	1289558
		Analysis Time..: 17:03			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J160281 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E1J170000-238 **Prep Batch #...:** 1290238					
Cadmium	108	(80 - 120)	SW846 6010B	10/17-10/18/01	EL9DA1AE
		Analysis Time..: 16:18			
Chromium	113	(85 - 120)	SW846 6010B	10/17-10/18/01	EL9DA1AF
		Analysis Time..: 16:18			
Copper	107	(80 - 120)	SW846 6010B	10/17-10/18/01	EL9DA1AG
		Analysis Time..: 16:18			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J160281 **Work Order #...:** EL6WD1C8-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J150204-001 EL6WD1C9-MSD
Date Sampled...: 10/15/01 15:45 **Date Received..:** 10/15/01 17:45 **MS Run #.......:** 1290165
Prep Date......: 10/16/01 **Analysis Date..:** 10/17/01
Prep Batch #...: 1290323 **Analysis Time..:** 05:52

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**ND**	**10.0**	**12.4**	**ug/L**	**124**		**SW846 8260B**
	Qualifiers: a,MSC						
	ND	**10.0**	**12.1**	**ug/L**	**121**	**2.4**	**SW846 8260B**
	Qualifiers: a,MSC						
Chlorobenzene	**ND**	**10.0**	**12.2**	**ug/L**	**122**		**SW846 8260B**
	Qualifiers: a,MSC						
	ND	**10.0**	**12.0**	**ug/L**	**120**	**1.6**	**SW846 8260B**
1,1-Dichloroethene	**ND**	**10.0**	**11.7**	**ug/L**	**117**		**SW846 8260B**
	ND	**10.0**	**11.8**	**ug/L**	**118**	**0.85**	**SW846 8260B**
Toluene	**ND**	**10.0**	**11.6**	**ug/L**	**116**		**SW846 8260B**
	ND	**10.0**	**11.6**	**ug/L**	**116**	**0.17**	**SW846 8260B**
Trichloroethene	**ND**	**10.0**	**12.8**	**ug/L**	**128**		**SW846 8260B**
	ND	**10.0**	**12.7**	**ug/L**	**127**	**0.70**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	114	(75 - 120)
	110	(75 - 120)
1,2-Dichloroethane-d4	113	(65 - 130)
	105	(65 - 130)
Toluene-d8	112	(80 - 130)
	108	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J160281 **Matrix.........:** WATER
Date Sampled...: 10/16/01 13:15 **Date Received..:** 10/16/01 16:10

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J160281-001 **Prep Batch #...:** 1290238									
Cadmium									
	ND	0.050	0.0520	mg/L	101		SW846 6010B	10/17-10/18/01	EL8T51AK
	ND	0.050	0.0542	mg/L	106	4.3	SW846 6010B	10/17-10/18/01	EL8T51AL
			Analysis Time..: 16:56						
			MS Run #.......: 1290110						
Chromium									
	ND	0.200	0.218	mg/L	106		SW846 6010B	10/17-10/18/01	EL8T51AM
	ND	0.200	0.226	mg/L	110	3.7	SW846 6010B	10/17-10/18/01	EL8T51AN
			Analysis Time..: 16:56						
			MS Run #.......: 1290110						
Copper									
	ND	0.250	0.293	mg/L	111		SW846 6010B	10/17-10/18/01	EL8T51AP
	ND	0.250	0.304	mg/L	115	3.7	SW846 6010B	10/17-10/18/01	EL8T51AQ
			Analysis Time..: 16:56						
			MS Run #.......: 1290110						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J160281 **Work Order #...:** EL6WD1C8-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J150204-001 EL6WD1C9-MSD
Date Sampled...: 10/15/01 15:45 **Date Received..:** 10/15/01 17:45 **MS Run #.......:** 1290165
Prep Date......: 10/16/01 **Analysis Date..:** 10/17/01
Prep Batch #...: 1290323 **Analysis Time..:** 05:52

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**124 a,MSC**	**(75 - 120)**			**SW846 8260B**
	121 a,MSC	**(75 - 120)**	**2.4**	**(0-25)**	**SW846 8260B**
Chlorobenzene	**122 a,MSC**	**(80 - 120)**			**SW846 8260B**
	120	**(80 - 120)**	**1.6**	**(0-25)**	**SW846 8260B**
1,1-Dichloroethene	**117**	**(70 - 130)**			**SW846 8260B**
	118	**(70 - 130)**	**0.85**	**(0-25)**	**SW846 8260B**
Toluene	**116**	**(80 - 120)**			**SW846 8260B**
	116	**(80 - 120)**	**0.17**	**(0-25)**	**SW846 8260B**
Trichloroethene	**128**	**(75 - 130)**			**SW846 8260B**
	127	**(75 - 130)**	**0.70**	**(0-25)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	114	(75 - 120)
	110	(75 - 120)
1,2-Dichloroethane-d4	113	(65 - 130)
	105	(65 - 130)
Toluene-d8	112	(80 - 130)
	108	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MSC The percent recovery of this analyte in the associated laboratory control sample is within control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J160281 **Matrix.........:** WATER
Date Sampled...: 10/16/01 13:15 **Date Received..:** 10/16/01 16:10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J160281-001 **Prep Batch #...:** 1290238							
Cadmium	101	(80 - 120)			SW846 6010B	10/17-10/18/01	EL8T51AK
	106	(80 - 120)	4.3	(0-20)	SW846 6010B	10/17-10/18/01	EL8T51AL
		Analysis Time..: 16:56					
		MS Run #.......: 1290110					
Chromium	106	(85 - 120)			SW846 6010B	10/17-10/18/01	EL8T51AM
	110	(85 - 120)	3.7	(0-20)	SW846 6010B	10/17-10/18/01	EL8T51AN
		Analysis Time..: 16:56					
		MS Run #.......: 1290110					
Copper	111	(80 - 120)			SW846 6010B	10/17-10/18/01	EL8T51AP
	115	(80 - 120)	3.7	(0-20)	SW846 6010B	10/17-10/18/01	EL8T51AQ
		Analysis Time..: 16:56					
		MS Run #.......: 1290110					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J160281 **Work Order #...:** EL8T5-SMP EL8T5-DUP **Matrix.......:** WATER

Date Sampled...: 10/16/01 13:15 **Date Received..:** 10/16/01 16:10

% Moisture.....: **Dilution Factor:** **Initial Wgt/Vol:**

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH						SD Lot-Sample #: E1J160281-001		
	6.8	6.8	No Units	0.10	(0-0.0)	SW846 9040B	10/16/01	1289558

Analysis Time..: 17:06 MS Run Number..: 1289263

SEVERN TRENT SERVICES

Subcontract Reports

Del Mar Analytical

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1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
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2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

LABORATORY REPORT

Prepared For: STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705

Attention: Diane Suzuki
Project: E1J160281

Sampled: 10/16/01
Received: 10/16/01
Reported: 10/25/01

This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.

CA ELAP Certificate #1197
AZ DHS License #AZ0428

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000036

Del Mar Analytical

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J160281

Report Number: IKJ0614

Sampled: 10/16/01
Received: 10/16/01

INORGANICS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/l	mg/l				
Sample ID: IKJ0614-01 (MW15-101601 - Water)								
Chromium VI	EPA 7199	I1J1641	0.0020	ND	1	10/16/01	10/16/01	
Sample ID: IKJ0614-02 (MW1D-101601 - Water)								
Chromium VI	EPA 7199	I1J1641	0.0020	ND	1	10/16/01	10/16/01	

Del Mar Analytical, Irvine
Pat Abe
Project Manager

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Del Mar Analytical

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J160281

Report Number: IKJ0614

Sampled: 10/16/01
Received: 10/16/01

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: I1J1641 Extracted: 10/16/01										
Blank Analyzed: 10/16/01 (I1J1641-BLK1)										
Chromium VI	ND	0.0020	mg/l							
LCS Analyzed: 10/16/01 (I1J1641-BS1)										
Chromium VI	0.0508	0.0020	mg/l	0.0500		102	90-110			
Matrix Spike Analyzed: 10/16/01 (I1J1641-MS1)					**Source: IKJ0614-02**					
Chromium VI	0.0497	0.0020	mg/l	0.0500	ND	98.1	70-130			
Matrix Spike Dup Analyzed: 10/16/01 (I1J1641-MSD1)					**Source: IKJ0614-02**					
Chromium VI	0.0495	0.0020	mg/l	0.0500	ND	97.7	70-130	0.403	15	

Del Mar Analytical, Irvine
Pat Abe
Project Manager

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
7277 Hayvenhurst, Suite B-12, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J160281

Report Number: IKJ0614

Sampled: 10/16/01
Received: 10/16/01

DATA QUALIFIERS AND DEFINITIONS

ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.

NR Not reported.

RPD Relative Percent Difference

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000039

SEVERN
TRENT
SERVICES

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705-4808

Tel: 714 258 8610
Fax: 714 258 0921
www.stl-inc.com

October 26, 2001

STL LOT NUMBER: E1J180165
NELAP Certification Number: 01118CA
PO/CONTRACT: 2279-11462-111.FLD

Sharon Wallin
Camp, Dresser, McKee
18881 Von Karman, Suite 650
Irvine, CA 92612

Dear Ms. Wallin,

This report contains the analytical results for the four samples received under chain of custody by STL Los Angeles on October 18, 2001. These samples are associated with your PTI - Santa Fe Springs project.

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page. See Project Receipt Checklist for container temperature and conditions. Temperature reading between 2 to 6 degrees Celsius is considered within acceptable criteria. Any matrix related anomaly is footnoted within the report. The Hexavalent Chromium by 7199 analysis was performed by Del Mar Analytical. See attached report for any related anomaly.

STL Los Angeles certifies that the tests performed at our facility meet all NELAP requirements for parameters for which accreditation is required or available. The case narrative is an integral part of the report. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at (714) 258-8610 extension 309.

Sincerely,

Diane Suzuki
Project Manager
CC: Project File

Page 1 of 000046 total pages in this report.

ACCREDITED IN ACCORDANCE WITH nelac

SEVERN TRENT SERVICES

LOT NUMBER E1J180165

Nonconformance 07-16600

Affected Samples:
E1J180165 (1): PTI-MW4A-051
E1J180165 (2): PTI-DI01-051
E1J180165 (3): PTI-EB01-051

Affected Methods:
8270C SIM, 1,4 Dioxane

Case Narrative:
Due to insufficient volume for MS/MSD, a LCS/DCS was prepared to measure accuracy of the batch.

STL LOS ANGELES
PROJECT RECEIPT CHECKLIST

Date: 10/18/01

Quantims Lot #: E1J180165
Quote #: 29756
Client Name: CAMP DRESSER & MCKEE
Project: PH/BROBECN PUL
Received by: MLT
Date/Time Received: 10/18/01 9:20
Delivered by: ☐ Client ☐ Airborne ☐ Fed Ex ☐ DHL ☐ Ultra-Ex ☐ Rey B. ☐ UPS ☑ DES ☐ Other ______

Initial / Date

Custody Seal Status: ☐ Intact ☐ Broken ☐ None .... MLT 10/18/01
Custody Seal #(s): ______ ☐ No Seal # ....
Sample Container(s): ☐ STL-LA ☐ Client ☐ N/A ....
Temperature(s) (COOLER/BLANK) in °C: 9°C (CORRECTED TEMP) 6°C
Thermometer Used: ☑ IR (Infra-red) A (CF= -3°C) ☐ Digital (Probe) ....
Samples: ☐ Intact ☐ Broken ☐ Other ______ ....
Anomalies: ☐ No ☐ Yes (See Clouseau) ....
Labeled by ....
Labeling checked by ....

Turn Around Time: ☐ RUSH-24HR ☐ RUSH-48HR ☐ RUSH-72HR ☒ NORMAL ....
Short-Hold Notification: ☐ Ph ☐ Wet Chem ☐ Metals (Filter/Pres) ☑ Encore ☑ N/A ...
Outside Analysis(es) (Test/Lab/Date Sent Out):

•••••••••• LEAVE NO BLANK SPACES ; USE N/A ••••••••••

Fraction	1->3	4-TB									PH
VOAh /*	3	3									N/A
1L AGB	1										—
500ml PBn	1										<2
125ml PB	1										—
125ml PB	1										>12

h:HCl n:Sodium Hydroxide zn:Zinc Acetate/Sodium Hydroxide s:H2SO4 n:HNO3 nf:HNO3-Field filtered nf:HNO3-Lab filtered
CGJ:Clear Glass Jar CGB:Clear Glass Bottle AGJ:Amber Glass Jar AGB:Amber Glass Bottle PB:Poly Bottle E:Encore Sampler V:VOA
* Number of VOA's w/ Headspace present

LOGGED BY/DATE: [signature] 10/18/01 REVIEWED BY/DATE: [signature] 10/18/01

SEVERN TRENT SERVICES

Analytical Report

EXECUTIVE SUMMARY - Detection Highlights

E1J180165

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PTI-MW4A-051 10/17/01 15:35 001				
Chloroform	1.1	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	25	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	6.2	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	1.7	1.0	ug/L	SW846 8260B
Tetrachloroethene	2.0	1.0	ug/L	SW846 8260B
Trichloroethene	22	1.0	ug/L	SW846 8260B
pH	7.5	0.10	No Units	SW846 9040B
PTI-DI01-051 10/17/01 14:45 002				
Bromodichloromethane	1.1	1.0	ug/L	SW846 8260B
Bromoform	1.5	1.0	ug/L	SW846 8260B
Dibromochloromethane	1.6	1.0	ug/L	SW846 8260B
Chloroform	2.2	1.0	ug/L	SW846 8260B
pH	7.7	0.10	No Units	SW846 9040B
PTI-EB01-051 10/17/01 14:45 003				
Bromoform	1.4	1.0	ug/L	SW846 8260B
Dibromochloromethane	1.4	1.0	ug/L	SW846 8260B
Chloroform	2.0	1.0	ug/L	SW846 8260B
pH	7.7	0.10	No Units	SW846 9040B

METHODS SUMMARY

E1J180165

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
pH Aqueous	SW846 9040B	SW846 9040B
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3005A
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826
8270C (SIM)	SW846 8270C SIM	

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E1J180165

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EMCQ7	001	PTI-MW4A-051	10/17/01	15:35
EMCRP	002	PTI-DI01-051	10/17/01	14:45
EMCTF	003	PTI-EB01-051	10/17/01	14:45
EMCTJ	004	TRIP BLANKS	10/17/01	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4A-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180165-001	**Work Order #...:**	EMCQ71AH	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 15:35	**Date Received..:**	10/18/01 09:20	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/22/01		
Prep Batch #...:	1292556	**Analysis Time..:**	20:51		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	ND	0.95	ug/L	0.33

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	63	(30 - 120)
Nitrobenzene-d5	75	(30 - 120)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4A-051

GC/MS Volatiles

Lot-Sample #...: E1J180165-001 **Work Order #...:** EMCQ71AA **Matrix.........:** WATER
Date Sampled...: 10/17/01 15:35 **Date Received..:** 10/18/01 09:20 **MS Run #.......:** 1293033
Prep Date......: 10/19/01 **Analysis Date..:** 10/19/01
Prep Batch #...: 1293151 **Analysis Time..:** 23:23
Method.........: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	**1.1**	**1.0**	**ug/L**	**0.30**
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	**25**	**1.0**	**ug/L**	**0.20**
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	**6.2**	**1.0**	**ug/L**	**0.30**
cis-1,2-Dichloroethene	**1.7**	**1.0**	**ug/L**	**0.30**
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	**2.0**	**1.0**	**ug/L**	**0.30**
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**22**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
Toluene-d8	94	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-DI01-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180165-002	**Work Order #...:**	EMCRP1AH	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 14:45	**Date Received..:**	10/18/01 09:20	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/22/01		
Prep Batch #...:	1292556	**Analysis Time..:**	21:12		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	ND	0.97	ug/L	0.33

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	70	(30 - 120)
Nitrobenzene-d5	83	(30 - 120)

PHIBRO-TECH, INC.

Client Sample ID: PTI-DI01-051

GC/MS Volatiles

Lot-Sample #...: E1J180165-002 **Work Order #...:** EMCRP1AA **Matrix.........:** WATER
Date Sampled...: 10/17/01 14:45 **Date Received..:** 10/18/01 09:20 **MS Run #.......:** 1293033
Prep Date......: 10/19/01 **Analysis Date..:** 10/19/01
Prep Batch #...: 1293151 **Analysis Time..:** 23:53
Method.........: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	**1.1**	**1.0**	**ug/L**	**0.30**
Bromoform	**1.5**	**1.0**	**ug/L**	**0.30**
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	**1.6**	**1.0**	**ug/L**	**0.40**
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	**2.2**	**1.0**	**ug/L**	**0.30**
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.30
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	100	(75 - 120)
1,2-Dichloroethane-d4	104	(65 - 130)
Toluene-d8	94	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-EB01-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J180165-003	**Work Order #...:**	EMCTF1AH	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 14:45	**Date Received..:**	10/18/01 09:20	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/22/01		
Prep Batch #...:	1292556	**Analysis Time..:**	21:33		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	ND	0.95	ug/L	0.33

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69	(30 - 120)
Nitrobenzene-d5	82	(30 - 120)

PHIBRO-TECH, INC.

Client Sample ID: PTI-EB01-051

GC/MS Volatiles

Lot-Sample #...:	E1J180165-003	**Work Order #...:**	EMCTF1AA	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 14:45	**Date Received..:**	10/18/01 09:20	**MS Run #.......:**	1293033
Prep Date......:	10/20/01	**Analysis Date..:**	10/20/01		
Prep Batch #...:	1293151	**Analysis Time..:**	00:23		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	**1.4**	**1.0**	**ug/L**	**0.30**
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	**1.4**	**1.0**	**ug/L**	**0.40**
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	**2.0**	**1.0**	**ug/L**	**0.30**
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.30
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	103	(75 - 120)
1,2-Dichloroethane-d4	104	(65 - 130)
Toluene-d8	96	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: TRIP BLANKS

GC/MS Volatiles

Lot-Sample #...: E1J180165-004 **Work Order #...:** EMCTJ1AA **Matrix.........:** WATER
Date Sampled...: 10/17/01 **Date Received..:** 10/18/01 09:20 **MS Run #.......:** 1293033
Prep Date......: 10/19/01 **Analysis Date..:** 10/19/01
Prep Batch #...: 1293151 **Analysis Time..:** 22:53
Method.........: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.30
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	104	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
Toluene-d8	99	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4A-051

General Chemistry

Lot-Sample #...: E1J180165-001 **Work Order #...:** EMCQ7 **Matrix.........:** WATER
Date Sampled...: 10/17/01 15:35 **Date Received..:** 10/18/01 09:20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.5**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291278**
		Analysis Time..: 12:02		MS Run #.......: 1291180	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-DI01-051

General Chemistry

Lot-Sample #...: E1J180165-002 **Work Order #...:** EMCRP **Matrix.........:** WATER
Date Sampled...: 10/17/01 14:45 **Date Received..:** 10/18/01 09:20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.7**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291278**
		Analysis Time..: 12:08		MS Run #.......: 1291180	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-EB01-051

General Chemistry

Lot-Sample #...: E1J180165-003 **Work Order #...:** EMCTF **Matrix.........:** WATER
Date Sampled...: 10/17/01 14:45 **Date Received..:** 10/18/01 09:20

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.7**	**0.10**	**No Units**	**SW846 9040B**	**10/18/01**	**1291278**
	Analysis Time..: 12:11			MS Run #.......: 1291180	MDL............:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW4A-051

TOTAL Metals

Lot-Sample #...: E1J180165-001 **Matrix.......:** WATER
Date Sampled...: 10/17/01 15:35 **Date Received..:** 10/18/01 09:20

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMCQ71AC
		Analysis Time..: 21:54		MS Run #.......: 1291063	MDL...........: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMCQ71AD
		Analysis Time..: 21:54		MS Run #.......: 1291063	MDL...........: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMCQ71AE
		Analysis Time..: 21:54		MS Run #.......: 1291063	MDL...........: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-DI01-051

TOTAL Metals

Lot-Sample #...: E1J180165-002 **Matrix.......:** WATER
Date Sampled...: 10/17/01 14:45 **Date Received..:** 10/18/01 09:20

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMCRP1AC
		Analysis Time..: 22:03		MS Run #.......: 1291063	MDL...........: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMCRP1AD
		Analysis Time..: 22:03		MS Run #.......: 1291063	MDL...........: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMCRP1AE
		Analysis Time..: 22:03		MS Run #.......: 1291063	MDL...........: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-EB01-051

TOTAL Metals

Lot-Sample #...: E1J180165-003 **Matrix.......:** WATER
Date Sampled...: 10/17/01 14:45 **Date Received..:** 10/18/01 09:20

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMCTF1AC
		Analysis Time..: 22:11		MS Run #.......: 1291063	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMCTF1AD
		Analysis Time..: 22:11		MS Run #.......: 1291063	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMCTF1AE
		Analysis Time..: 22:11		MS Run #.......: 1291063	MDL............: 0.0040	

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QA/QC

QC DATA ASSOCIATION SUMMARY

E1J180165

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291278	1291180
	WATER	SW846 8260B		1293151	1293033
	WATER	SW846 6010B		1291182	1291063
002	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291278	1291180
	WATER	SW846 8260B		1293151	1293033
	WATER	SW846 6010B		1291182	1291063
003	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1291278	1291180
	WATER	SW846 8260B		1293151	1293033
	WATER	SW846 6010B		1291182	1291063
004	WATER	SW846 8260B		1293151	1293033

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: E1J180165 **Work Order #...:** EMG681AA **Matrix.........:** WATER
MB Lot-Sample #: G1J190000-556
Prep Date......: 10/19/01 **Analysis Time..:** 18:25
Analysis Date..: 10/22/01 **Prep Batch #...:** 1292556

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,4-Dioxane	ND	1.0	ug/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	78	(30 - 120)
Nitrobenzene-d5	86	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E1J180165 **Work Order #...:** EMHXV1AA **Matrix.........:** WATER
MB Lot-Sample #: E1J200000-151
Prep Date......: 10/19/01 **Analysis Time..:** 22:24
Analysis Date..: 10/19/01 **Prep Batch #...:** 1293151

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	2.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(75 - 120)
1,2-Dichloroethane-d4	102	(65 - 130)
Toluene-d8	96	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: E1J180165 **Matrix.........:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: E1J180000-182		**Prep Batch #...:** 1291182				
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMCH11AA
		Analysis Time..: 18:30				
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMCH11AC
		Analysis Time..: 18:30				
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMCH11AD
		Analysis Time..: 18:30				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: E1J180165 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,4-Dioxane	**10.0**	**4.32**	**ug/L**	**43**		**SW846 8270C SIM**
	10.0	**4.57**	**ug/L**	**46**	**5.6**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: E1J180165 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,4-Dioxane	**43**	**(30 - 120)**			**SW846 8270C SIM**
	46	**(30 - 120)**	**5.6**	**(0-35)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J180165 **Work Order #...:** EMHXV1AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J200000-151
Prep Date......: 10/19/01 **Analysis Date..:** 10/19/01
Prep Batch #...: 1293151 **Analysis Time..:** 21:24

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	**10.0**	**10.3**	**ug/L**	**103**	**SW846 8260B**
Chlorobenzene	**10.0**	**10.0**	**ug/L**	**100**	**SW846 8260B**
1,1-Dichloroethene	**10.0**	**10.5**	**ug/L**	**105**	**SW846 8260B**
Toluene	**10.0**	**10.3**	**ug/L**	**103**	**SW846 8260B**
Trichloroethene	**10.0**	**10.2**	**ug/L**	**102**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
Toluene-d8	98	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J180165 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E1J180000-182 **Prep Batch #...:** 1291182							
Cadmium	0.0500	0.0487	mg/L	97	SW846 6010B	10/18-10/19/01	EMCH11AE
			Analysis Time..: 18:36				
Chromium	0.200	0.201	mg/L	100	SW846 6010B	10/18-10/19/01	EMCH11AF
			Analysis Time..: 18:36				
Copper	0.250	0.240	mg/L	96	SW846 6010B	10/18-10/19/01	EMCH11AG
			Analysis Time..: 18:36				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: E1J180165 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH			Work Order #: EMC9G1AA	LCS Lot-Sample#: E1J180000-278			
	9.18	9.23	No Units	101	SW846 9040B	10/18/01	1291278
			Analysis Time..: 11:59				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J180165 **Work Order #...:** EMHXV1AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J200000-151
Prep Date......: 10/19/01 **Analysis Date..:** 10/19/01
Prep Batch #...: 1293151 **Analysis Time..:** 21:24

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**103**	**(75 - 120)**	**SW846 8260B**
Chlorobenzene	**100**	**(80 - 120)**	**SW846 8260B**
1,1-Dichloroethene	**105**	**(70 - 130)**	**SW846 8260B**
Toluene	**103**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**102**	**(75 - 130)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
Toluene-d8	98	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J180165 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#:	E1J180000-182	**Prep Batch #...:** 1291182			
Cadmium	97	(80 - 120)	SW846 6010B	10/18-10/19/01	EMCH11AE
		Analysis Time..: 18:36			
Chromium	100	(85 - 120)	SW846 6010B	10/18-10/19/01	EMCH11AF
		Analysis Time..: 18:36			
Copper	96	(80 - 120)	SW846 6010B	10/18-10/19/01	EMCH11AG
		Analysis Time..: 18:36			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J180165 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH		Work Order #: EMC9G1AA LCS Lot-Sample#: E1J180000-278			
	101	(90 - 110)	SW846 9040B	10/18/01	1291278
		Analysis Time..: 11:59			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J180165 **Matrix.........:** WATER
Date Sampled...: 10/17/01 07:45 **Date Received..:** 10/17/01 15:50

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J170291-001 **Prep Batch #...:** 1291182									
Cadmium									
	ND	0.050	0.0497	mg/L	99		SW846 6010B	10/18-10/19/01	EMAXK1AK
	ND	0.050	0.0481	mg/L	96	3.1	SW846 6010B	10/18-10/19/01	EMAXK1AL
			Analysis Time..: 19:26						
			MS Run #.......: 1291063						
Chromium									
	ND	0.200	0.207	mg/L	103		SW846 6010B	10/18-10/19/01	EMAXK1AM
	ND	0.200	0.202	mg/L	100	2.4	SW846 6010B	10/18-10/19/01	EMAXK1AN
			Analysis Time..: 19:26						
			MS Run #.......: 1291063						
Copper									
	ND	0.250	0.277	mg/L	107		SW846 6010B	10/18-10/19/01	EMAXK1AP
	ND	0.250	0.269	mg/L	104	3.0	SW846 6010B	10/18-10/19/01	EMAXK1AQ
			Analysis Time..: 19:26						
			MS Run #.......: 1291063						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J180165 **Work Order #...:** EMCRP1AK-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J180165-002 EMCRP1AL-MSD
Date Sampled...: 10/17/01 14:45 **Date Received..:** 10/18/01 09:20 **MS Run #.......:** 1293033
Prep Date......: 10/20/01 **Analysis Date..:** 10/20/01
Prep Batch #...: 1293151 **Analysis Time..:** 07:20

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**ND**	**10.0**	**10.3**	**ug/L**	**103**		**SW846 8260B**
	ND	**10.0**	**10.4**	**ug/L**	**104**	**0.67**	**SW846 8260B**
Chlorobenzene	**ND**	**10.0**	**10.2**	**ug/L**	**102**		**SW846 8260B**
	ND	**10.0**	**9.87**	**ug/L**	**99**	**3.8**	**SW846 8260B**
1,1-Dichloroethene	**ND**	**10.0**	**9.94**	**ug/L**	**99**		**SW846 8260B**
	ND	**10.0**	**10.3**	**ug/L**	**103**	**3.2**	**SW846 8260B**
Toluene	**ND**	**10.0**	**10.2**	**ug/L**	**102**		**SW846 8260B**
	ND	**10.0**	**10.1**	**ug/L**	**101**	**1.1**	**SW846 8260B**
Trichloroethene	**ND**	**10.0**	**10.7**	**ug/L**	**107**		**SW846 8260B**
	ND	**10.0**	**10.9**	**ug/L**	**109**	**2.3**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 120)
	94	(75 - 120)
1,2-Dichloroethane-d4	105	(65 - 130)
	103	(65 - 130)
Toluene-d8	90	(80 - 130)
	86	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J180165 **Matrix.........:** WATER
Date Sampled...: 10/17/01 07:45 **Date Received..:** 10/17/01 15:50

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J170291-001 **Prep Batch #...:** 1291182							
Cadmium	99	(80 - 120)			SW846 6010B	10/18-10/19/01	EMAXK1AK
	96	(80 - 120)	3.1	(0-20)	SW846 6010B	10/18-10/19/01	EMAXK1AL
		Analysis Time..: 19:26					
		MS Run #.......: 1291063					
Chromium	103	(85 - 120)			SW846 6010B	10/18-10/19/01	EMAXK1AM
	100	(85 - 120)	2.4	(0-20)	SW846 6010B	10/18-10/19/01	EMAXK1AN
		Analysis Time..: 19:26					
		MS Run #.......: 1291063					
Copper	107	(80 - 120)			SW846 6010B	10/18-10/19/01	EMAXK1AP
	104	(80 - 120)	3.0	(0-20)	SW846 6010B	10/18-10/19/01	EMAXK1AQ
		Analysis Time..: 19:26					
		MS Run #.......: 1291063					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J180165 **Work Order #...:** EMCRP1AK-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J180165-002 EMCRP1AL-MSD
Date Sampled...: 10/17/01 14:45 **Date Received..:** 10/18/01 09:20 **MS Run #.......:** 1293033
Prep Date......: 10/20/01 **Analysis Date..:** 10/20/01
Prep Batch #...: 1293151 **Analysis Time..:** 07:20

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**103**	**(75 - 120)**			**SW846 8260B**
	104	**(75 - 120)**	**0.67**	**(0-25)**	**SW846 8260B**
Chlorobenzene	**102**	**(80 - 120)**			**SW846 8260B**
	99	**(80 - 120)**	**3.8**	**(0-25)**	**SW846 8260B**
1,1-Dichloroethene	**99**	**(70 - 130)**			**SW846 8260B**
	103	**(70 - 130)**	**3.2**	**(0-25)**	**SW846 8260B**
Toluene	**102**	**(80 - 120)**			**SW846 8260B**
	101	**(80 - 120)**	**1.1**	**(0-25)**	**SW846 8260B**
Trichloroethene	**107**	**(75 - 130)**			**SW846 8260B**
	109	**(75 - 130)**	**2.3**	**(0-25)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 120)
	94	(75 - 120)
1,2-Dichloroethane-d4	105	(65 - 130)
	103	(65 - 130)
Toluene-d8	90	(80 - 130)
	86	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J180165 **Work Order #...:** EMCQ7-SMP EMCQ7-DUP **Matrix.......:** WATER

Date Sampled...: 10/17/01 15:35 **Date Received..:** 10/18/01 09:20

% Moisture.....: **Dilution Factor:** **Initial Wgt/Vol:**

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH						SD Lot-Sample #: E1J180165-001		
	7.5	7.4	No Units	0.24	(0-0.0)	SW846 9040B	10/18/01	1291278

Analysis Time..: 12:02 MS Run Number..: 1291180

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Subcontract Reports

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7277 Hayvenhurst, Suite B-12, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

LABORATORY REPORT

Prepared For: STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705

Attention: Diane Suzuki
Project: E1J180165

Sampled: 10/17/01
Received: 10/18/01
Reported: 10/29/01

This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.

CA ELAP Certificate #1197
AZ DHS License #AZ0428

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000042

Del Mar Analytical

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J180165

Report Number: IKJ0684

Sampled: 10/17/01
Received: 10/18/01

INORGANICS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/l	mg/l				
Sample ID: IKJ0684-01 (PTI-MW4A-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.0020	**0.0077**	1	10/18/01	10/18/01	
Sample ID: IKJ0684-02 (PTI-DI01-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.0020	ND	1	10/18/01	10/18/01	
Sample ID: IKJ0684-03 (PTI-EB01-051 - Water)								
Chromium VI	EPA 7199	I1J1833	0.0020	ND	1	10/18/01	10/18/01	

Del Mar Analytical, Irvine
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Project Manager

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J180165

Report Number: IKJ0684

Sampled: 10/17/01
Received: 10/18/01

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: I1J1833 Extracted: 10/18/01										
Blank Analyzed: 10/18/01 (I1J1833-BLK1)										
Chromium VI	ND	0.0020	mg/l							
LCS Analyzed: 10/18/01 (I1J1833-BS1)										
Chromium VI	0.0518	0.0020	mg/l	0.0500		104	90-110			
Matrix Spike Analyzed: 10/18/01 (I1J1833-MS1)					**Source: IKJ0684-03**					
Chromium VI	0.0514	0.0020	mg/l	0.0500	ND	102	70-130			
Matrix Spike Dup Analyzed: 10/18/01 (I1J1833-MSD1)					**Source: IKJ0684-03**					
Chromium VI	0.0509	0.0020	mg/l	0.0500	ND	101	70-130	0.978	15	

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000044

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J180165

Report Number: IKJ0684

Sampled: 10/17/01
Received: 10/18/01

DATA QUALIFIERS AND DEFINITIONS

ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.

NR Not reported.

RPD Relative Percent Difference

Del Mar Analytical, Irvine
Pat Abe
Project Manager

SEVERN TRENT SERVICES

STL Los Angeles
1721 South Grand Avenue
Santa Ana, CA 92705-4808

Tel: 714 258 8610
Fax: 714 258 0921
www.stl-inc.com

October 30, 2001

STL LOT NUMBER: E1J170291
NELAP Certification Number: 01118CA
PO/CONTRACT: 2279-11462-111.FLD

Sharon Wallin
Camp, Dresser, McKee
18881 Von Karman, Suite 650
Irvine, CA 92612

Dear Ms. Wallin,

This report contains the analytical results for the seven samples received under chain of custody by STL Los Angeles on October 17, 2001. These samples are associated with your PTI - Santa Fe Springs project.

All applicable quality control procedures met method-specified acceptance criteria except as noted on the following page. See Project Receipt Checklist for container temperature and conditions. Temperature reading between 2 to 6 degrees Celsius is considered within acceptable criteria. Any matrix related anomaly is footnoted within the report. The Hexavalent Chromium by 7199 analysis was performed by Del Mar Analytical. See attached report for any related anomaly.

STL Los Angeles certifies that the tests performed at our facility meet all NELAP requirements for parameters for which accreditation is required or available. The case narrative is an integral part of the report. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at (714) 258-8610 extension 309.

Sincerely,

Diane Suzuki
Project Manager
CC: Project File

Page 1 of 000057 total pages in this report.

ACCREDITED IN ACCORDANCE WITH nelac

SEVERN TRENT SERVICES

LOT NUMBER E1J170291

Nonconformance 07-16600

Affected Samples:
E1J170291 (2): PTI-MW15D-051
E1J170291 (4): PTI-MW6D-051

Affected Methods:
8270C SIM, 1,4 Dioxane

Case Narrative:
Due to insufficient volume for MS/MSD, a LCS/DCS was prepared to measure accuracy of the batch.

STL LOS ANGELES
PROJECT RECEIPT CHECKLIST

Date: 10/17/01

Quantims Lot #: E1J170291
Client Name: DEL MAR ANALYTICAL
Received by: MLT MLT

Quote #: 29756
Project: PhilnoTech
Date/Time Received: 10/17/01 15:50

Delivered by: ☐Client ☐Airborne ☒Fed Ex ☐DHL ☐Ultra-Ex ☐Rey B.
☐UPS ☐DES ☒Other ______

Initial / Date

Custody Seal Status: ☐Intact ☐Broken ☐None .... MLT 10/17/01
Custody Seal #(s): ______ ☐No Seal # ....
Sample Container(s): ☐STL-LA ☐Client ☐N/A ....
Temperature(s) (COOLER/BLANK) in °C: 8°C (CORRECTED TEMP) 5°C
Thermometer Used: ☒IR (Infra-red) A (CF= -3°C) ☐Digital (Probe) ....
Samples: ☒Intact ☐Broken ☐Other ______ ....
Anomalies: ☒No ☐Yes (See Clouseau) ....
Labeled by ...... MLT ....
Labeling checked by ....

Turn Around Time: ☐RUSH-24HR ☐RUSH-48HR ☐RUSH-72HR ☒NORMAL ....
Short-Hold Notification: ☐Ph ☐Wet Chem ☐Metals (Filter/Pres) ☒Encore ☒N/A ...
Outside Analysis(es) (Test/Lab/Date Sent Out):
7199 to Del Mar.
8270 SIM to WSTC

•••••••••• LEAVE NO BLANK SPACES ; USE N/A ••••••••••

Fraction	1->2	3	4	5->6	7-13					PH
VOAh /*	3	3	3	3	6					N/A
125ml PB	1	1	1	1						>12
125ml PB	1	1	1	1						—
500ml PB	1	1	1	1						<2
1L AGB	1	—	1	—						

h:HCl n:Sodium Hydroxide zn:Zinc Acetate/Sodium Hydroxide s:H2SO4 n:HNO3 nf:HNO3-Field filtered nl:HNO3-Lab filtered
CGJ:Clear Glass Jar CGB:Clear Glass Bottle AGJ:Amber Glass Jar AGB:Amber Glass Bottle PB: Poly Bottle E:Encore Sampler V:VOA

* Number of VOA's w/ Headspace present

LOGGED BY/DATE: Pacolla 10/16/01 REVIEWED BY/DATE: [signature] 10/17/01

SEVERN TRENT SERVICES

CHANGE ORDER

Lab Analysis No.	E1J170291
Client Name	PTI
Contact	John Bennett @ com

- [x] CANCEL Work
- [ ] ADD Work
- [ ] Chain of Custody Discrepancy
- [ ] TAT Change
- [ ] Matrix
- [ ] Sample Problem
- [ ] Tests Not Defined
- [ ] Other

EXPLANATION/RESOLUTION
PTI-MW3-051 = cancel 1,4 dioxane by 8270

Initiated By: Qi

Date/Time: 10/18/01

Received By: ________

Date/Time: ________

Distribution:
Original - Sample Control/Job Folder; Yellow - Lab; Pink - Initiator

000007

ENS—3008

SEVERN
TRENT
SERVICES

Analytical Report

EXECUTIVE SUMMARY - Detection Highlights

E1J170291

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PTI-MW3-051 10/17/01 07:45 001				
Carbon tetrachloride	39	5.0	ug/L	SW846 8260B
Chloroform	35	5.0	ug/L	SW846 8260B
1,1-Dichloroethane	35	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	35	5.0	ug/L	SW846 8260B
Tetrachloroethene	5.1	5.0	ug/L	SW846 8260B
Trichloroethene	290	5.0	ug/L	SW846 8260B
pH	7.1	0.10	No Units	SW846 9040B
PTI-MW15D-051 10/17/01 09:15 002				
Benzene	2.2	1.0	ug/L	SW846 8260B
Tetrachloroethene	2.4	1.0	ug/L	SW846 8260B
Trichloroethene	6.7	1.0	ug/L	SW846 8260B
pH	7.6	0.10	No Units	SW846 9040B
PTI-MW15S-051 10/17/01 10:15 003				
Carbon tetrachloride	2.0	1.0	ug/L	SW846 8260B
Chloroform	3.5	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	8.2	1.0	ug/L	SW846 8260B
Tetrachloroethene	1.2	1.0	ug/L	SW846 8260B
Trichloroethene	2.8	1.0	ug/L	SW846 8260B
pH	7.5	0.10	No Units	SW846 9040B
PTI-MW6D-051 10/17/01 11:25 004				
Tetrachloroethene	1.1	1.0	ug/L	SW846 8260B
Trichloroethene	4.6	1.0	ug/L	SW846 8260B
pH	7.6	0.10	No Units	SW846 9040B
PTI-MW6B-051 10/17/01 12:25 005				
Trichloroethene	4.6	1.0	ug/L	SW846 8260B
pH	7.5	0.10	No Units	SW846 9040B
PTI-MW14S-051 10/17/01 14:30 006				
Chromium	0.14	0.010	mg/L	SW846 6010B
Copper	0.042	0.025	mg/L	SW846 6010B
Carbon tetrachloride	22	2.0	ug/L	SW846 8260B
Chlorobenzene	2.3	2.0	ug/L	SW846 8260B
Chloroform	23	2.0	ug/L	SW846 8260B
1,1-Dichloroethane	56	2.0	ug/L	SW846 8260B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

E1J170291

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
PTI-MW14S-051 10/17/01 14:30 006				
1,2-Dichloroethane	6.4	2.0	ug/L	SW846 8260B
1,1-Dichloroethene	39	2.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	5.2	2.0	ug/L	SW846 8260B
Ethylbenzene	2.4	2.0	ug/L	SW846 8260B
Tetrachloroethene	2.4	2.0	ug/L	SW846 8260B
Trichloroethene	170	2.0	ug/L	SW846 8260B
pH	7.2	0.10	No Units	SW846 9040B

METHODS SUMMARY

E1J170291

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
pH Aqueous	SW846 9040B	SW846 9040B
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3005A
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826
8270C (SIM)	SW846 8270C SIM	

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

E1J170291

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EMAXK	001	PTI-MW3-051	10/17/01	07:45
EMAXP	002	PTI-MW15D-051	10/17/01	09:15
EMAXQ	003	PTI-MW15S-051	10/17/01	10:15
EMAXR	004	PTI-MW6D-051	10/17/01	11:25
EMAXT	005	PTI-MW6B-051	10/17/01	12:25
EMAXW	006	PTI-MW14S-051	10/17/01	14:30
EMAX5	007	TRIP BLANK	10/17/01	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW3-051

GC/MS Volatiles

Lot-Sample #...:	E1J170291-001	**Work Order #...:**	EMAXK1AA	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 07:45	**Date Received..:**	10/17/01 15:50	**MS Run #.......:**	1293032
Prep Date......:	10/20/01	**Analysis Date..:**	10/20/01		
Prep Batch #...:	1293152	**Analysis Time..:**	03:03		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	5.0	ug/L	1.5
Bromodichloromethane	ND	5.0	ug/L	1.5
Bromoform	ND	5.0	ug/L	1.5
Bromomethane	ND	10	ug/L	5.0
Carbon tetrachloride	**39**	**5.0**	**ug/L**	**1.5**
Chlorobenzene	ND	5.0	ug/L	1.5
Dibromochloromethane	ND	5.0	ug/L	2.0
Chloroethane	ND	10	ug/L	1.5
Chloroform	**35**	**5.0**	**ug/L**	**1.5**
Chloromethane	ND	10	ug/L	1.5
1,2-Dichlorobenzene	ND	5.0	ug/L	1.5
1,3-Dichlorobenzene	ND	5.0	ug/L	1.5
1,4-Dichlorobenzene	ND	5.0	ug/L	1.5
1,1-Dichloroethane	**35**	**5.0**	**ug/L**	**1.0**
1,2-Dichloroethane	ND	5.0	ug/L	2.0
1,1-Dichloroethene	**35**	**5.0**	**ug/L**	**1.5**
cis-1,2-Dichloroethene	ND	5.0	ug/L	1.5
trans-1,2-Dichloroethene	ND	5.0	ug/L	1.5
1,2-Dichloropropane	ND	5.0	ug/L	1.5
cis-1,3-Dichloropropene	ND	5.0	ug/L	1.5
trans-1,3-Dichloropropene	ND	5.0	ug/L	2.5
Ethylbenzene	ND	5.0	ug/L	1.0
Methylene chloride	ND	5.0	ug/L	1.5
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L	2.0
Tetrachloroethene	**5.1**	**5.0**	**ug/L**	**1.5**
Toluene	ND	5.0	ug/L	1.5
1,1,1-Trichloroethane	ND	5.0	ug/L	1.0
1,1,2-Trichloroethane	ND	5.0	ug/L	1.5
Trichloroethene	**290**	**5.0**	**ug/L**	**1.5**
Trichlorofluoromethane	ND	10	ug/L	1.5
Vinyl chloride	ND	10	ug/L	1.5
m-Xylene & p-Xylene	ND	5.0	ug/L	2.5
o-Xylene	ND	5.0	ug/L	1.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	94	(75 - 120)
1,2-Dichloroethane-d4	94	(65 - 130)
Toluene-d8	98	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW15D-051

GC/MS Semivolatiles

Lot-Sample #...: E1J170291-002 **Work Order #...:** EMAXP1AG **Matrix.........:** WATER
Date Sampled...: 10/17/01 09:15 **Date Received..:** 10/17/01 15:50 **MS Run #.......:**
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 20:09
Method.........: SW846 8270C SIM

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	ND	0.95	ug/L	0.33

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	60	(30 - 120)
Nitrobenzene-d5	75	(30 - 120)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW15D-051

GC/MS Volatiles

Lot-Sample #...:	E1J170291-002	**Work Order #...:**	EMAXP1AA	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 09:15	**Date Received..:**	10/17/01 15:50	**MS Run #.......:**	1293032
Prep Date......:	10/20/01	**Analysis Date..:**	10/20/01		
Prep Batch #...:	1293152	**Analysis Time..:**	03:32		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	**2.2**	**1.0**	**ug/L**	**0.30**
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	**2.4**	**1.0**	**ug/L**	**0.30**
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**6.7**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
1,2-Dichloroethane-d4	95	(65 - 130)
Toluene-d8	95	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW15S-051

GC/MS Volatiles

Lot-Sample #...:	E1J170291-003	**Work Order #...:**	EMAXQ1AA	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 10:15	**Date Received..:**	10/17/01 15:50	**MS Run #.......:**	1293032
Prep Date......:	10/20/01	**Analysis Date..:**	10/20/01		
Prep Batch #...:	1293152	**Analysis Time..:**	04:02		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	**2.0**	**1.0**	**ug/L**	**0.30**
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	**3.5**	**1.0**	**ug/L**	**0.30**
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	**8.2**	**1.0**	**ug/L**	**0.40**
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	**1.2**	**1.0**	**ug/L**	**0.30**
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**2.8**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	95	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	95	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW6D-051

GC/MS Semivolatiles

Lot-Sample #...:	E1J170291-004	**Work Order #...:**	EMAXR1AG	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 11:25	**Date Received..:**	10/17/01 15:50	**MS Run #.......:**	
Prep Date......:	10/19/01	**Analysis Date..:**	10/22/01		
Prep Batch #...:	1292556	**Analysis Time..:**	20:30		
		Method.........:	SW846 8270C SIM		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	ND	0.95	ug/L	0.33

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	63	(30 - 120)
Nitrobenzene-d5	72	(30 - 120)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW6D-051

GC/MS Volatiles

Lot-Sample #...: E1J170291-004 **Work Order #...:** EMAXR1AA **Matrix.........:** WATER
Date Sampled...: 10/17/01 11:25 **Date Received..:** 10/17/01 15:50 **MS Run #.......:** 1293032
Prep Date......: 10/20/01 **Analysis Date..:** 10/20/01
Prep Batch #...: 1293152 **Analysis Time..:** 04:32
Method.........: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	**1.1**	**1.0**	**ug/L**	**0.30**
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**4.6**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	99	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW6B-051

GC/MS Volatiles

Lot-Sample #...:	E1J170291-005	**Work Order #...:**	EMAXT1AA	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 12:25	**Date Received..:**	10/17/01 15:50	**MS Run #.......:**	1293032
Prep Date......:	10/20/01	**Analysis Date..:**	10/20/01		
Prep Batch #...:	1293152	**Analysis Time..:**	02:33		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	**4.6**	**1.0**	**ug/L**	**0.30**
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	98	(75 - 120)
1,2-Dichloroethane-d4	91	(65 - 130)
Toluene-d8	97	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW14S-051

GC/MS Volatiles

Lot-Sample #...:	E1J170291-006	**Work Order #...:**	EMAXW1AA	**Matrix.........:**	WATER
Date Sampled...:	10/17/01 14:30	**Date Received..:**	10/17/01 15:50	**MS Run #.......:**	1293032
Prep Date......:	10/20/01	**Analysis Date..:**	10/20/01		
Prep Batch #...:	1293152	**Analysis Time..:**	05:01		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	2.0	ug/L	0.60
Bromodichloromethane	ND	2.0	ug/L	0.60
Bromoform	ND	2.0	ug/L	0.60
Bromomethane	ND	4.0	ug/L	2.0
Carbon tetrachloride	**22**	**2.0**	**ug/L**	**0.60**
Chlorobenzene	**2.3**	**2.0**	**ug/L**	**0.60**
Dibromochloromethane	ND	2.0	ug/L	0.80
Chloroethane	ND	4.0	ug/L	0.60
Chloroform	**23**	**2.0**	**ug/L**	**0.60**
Chloromethane	ND	4.0	ug/L	0.60
1,2-Dichlorobenzene	ND	2.0	ug/L	0.60
1,3-Dichlorobenzene	ND	2.0	ug/L	0.60
1,4-Dichlorobenzene	ND	2.0	ug/L	0.60
1,1-Dichloroethane	**56**	**2.0**	**ug/L**	**0.40**
1,2-Dichloroethane	**6.4**	**2.0**	**ug/L**	**0.80**
1,1-Dichloroethene	**39**	**2.0**	**ug/L**	**0.60**
cis-1,2-Dichloroethene	**5.2**	**2.0**	**ug/L**	**0.60**
trans-1,2-Dichloroethene	ND	2.0	ug/L	0.60
1,2-Dichloropropane	ND	2.0	ug/L	0.60
cis-1,3-Dichloropropene	ND	2.0	ug/L	0.60
trans-1,3-Dichloropropene	ND	2.0	ug/L	1.0
Ethylbenzene	**2.4**	**2.0**	**ug/L**	**0.40**
Methylene chloride	ND	2.0	ug/L	0.60
1,1,2,2-Tetrachloroethane	ND	2.0	ug/L	0.80
Tetrachloroethene	**2.4**	**2.0**	**ug/L**	**0.60**
Toluene	ND	2.0	ug/L	0.60
1,1,1-Trichloroethane	ND	2.0	ug/L	0.40
1,1,2-Trichloroethane	ND	2.0	ug/L	0.60
Trichloroethene	**170**	**2.0**	**ug/L**	**0.60**
Trichlorofluoromethane	ND	4.0	ug/L	0.60
Vinyl chloride	ND	4.0	ug/L	0.60
m-Xylene & p-Xylene	ND	2.0	ug/L	1.0
o-Xylene	ND	2.0	ug/L	0.40

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	96	(75 - 120)
1,2-Dichloroethane-d4	95	(65 - 130)
Toluene-d8	94	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...:	E1J170291-007	**Work Order #...:**	EMAX51AA	**Matrix.........:**	WATER
Date Sampled...:	10/17/01	**Date Received..:**	10/17/01 15:50	**MS Run #.......:**	1293032
Prep Date......:	10/19/01	**Analysis Date..:**	10/19/01		
Prep Batch #...:	1293152	**Analysis Time..:**	21:35		
		Method.........:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Benzene	ND	1.0	ug/L	0.30
Bromodichloromethane	ND	1.0	ug/L	0.30
Bromoform	ND	1.0	ug/L	0.30
Bromomethane	ND	2.0	ug/L	1.0
Carbon tetrachloride	ND	1.0	ug/L	0.30
Chlorobenzene	ND	1.0	ug/L	0.30
Dibromochloromethane	ND	1.0	ug/L	0.40
Chloroethane	ND	2.0	ug/L	0.30
Chloroform	ND	1.0	ug/L	0.30
Chloromethane	ND	2.0	ug/L	0.30
1,2-Dichlorobenzene	ND	1.0	ug/L	0.30
1,3-Dichlorobenzene	ND	1.0	ug/L	0.30
1,4-Dichlorobenzene	ND	1.0	ug/L	0.30
1,1-Dichloroethane	ND	1.0	ug/L	0.20
1,2-Dichloroethane	ND	1.0	ug/L	0.40
1,1-Dichloroethene	ND	1.0	ug/L	0.30
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.30
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.30
1,2-Dichloropropane	ND	1.0	ug/L	0.30
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.30
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.50
Ethylbenzene	ND	1.0	ug/L	0.20
Methylene chloride	ND	1.0	ug/L	0.30
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.40
Tetrachloroethene	ND	1.0	ug/L	0.30
Toluene	ND	1.0	ug/L	0.30
1,1,1-Trichloroethane	ND	1.0	ug/L	0.20
1,1,2-Trichloroethane	ND	1.0	ug/L	0.30
Trichloroethene	ND	1.0	ug/L	0.30
Trichlorofluoromethane	ND	2.0	ug/L	0.30
Vinyl chloride	ND	2.0	ug/L	0.30
m-Xylene & p-Xylene	ND	1.0	ug/L	0.50
o-Xylene	ND	1.0	ug/L	0.20

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	92	(75 - 120)
1,2-Dichloroethane-d4	90	(65 - 130)
Toluene-d8	95	(80 - 130)

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW3-051

General Chemistry

Lot-Sample #...: E1J170291-001 **Work Order #...:** EMAXK **Matrix.........:** WATER
Date Sampled...: 10/17/01 07:45 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.1**	**0.10**	**No Units**	**SW846 9040B**	**10/17/01**	**1290527**
	Analysis Time..: 17:12			MS Run #.......: 1290278	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW15D-051

General Chemistry

Lot-Sample #...: E1J170291-002 **Work Order #...:** EMAXP **Matrix.........:** WATER
Date Sampled...: 10/17/01 09:15 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.6**	**0.10**	**No Units**	**SW846 9040B**	**10/17/01**	**1290527**
		Analysis Time..: 17:18		MS Run #.......: 1290278	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW15S-051

General Chemistry

Lot-Sample #...: E1J170291-003 **Work Order #...:** EMAXQ **Matrix.........:** WATER
Date Sampled...: 10/17/01 10:15 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	7.5	0.10	**No Units**	**SW846 9040B**	**10/17/01**	**1290527**
	Analysis Time..: 17:21			MS Run #.......: 1290278	MDL............:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW6D-051

General Chemistry

Lot-Sample #...: E1J170291-004 **Work Order #...:** EMAXR **Matrix.........:** WATER
Date Sampled...: 10/17/01 11:25 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	7.6	0.10	No Units	SW846 9040B	10/17/01	1290527

Analysis Time..: 17:25 MS Run #.......: 1290278 MDL............:

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW6B-051

General Chemistry

Lot-Sample #...: E1J170291-005 **Work Order #...:** EMAXT **Matrix.........:** WATER
Date Sampled...: 10/17/01 12:25 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	**7.5**	**0.10**	**No Units**	**SW846 9040B**	**10/17/01**	**1290527**
		Analysis Time..: 17:28		MS Run #.......: 1290278	MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW14S-051

General Chemistry

Lot-Sample #...: E1J170291-006 **Work Order #...:** EMAXW **Matrix.........:** WATER
Date Sampled...: 10/17/01 14:30 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH	7.2	0.10	No Units	SW846 9040B	10/17/01	1290527
	Analysis Time..: 17:31		MS Run #.......: 1290278		MDL...........:	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW3-051

TOTAL Metals

Lot-Sample #...: E1J170291-001 **Matrix.......:** WATER
Date Sampled...: 10/17/01 07:45 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMAXK1AC
		Analysis Time..: 18:56		MS Run #.......: 1291063	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMAXK1AD
		Analysis Time..: 18:56		MS Run #.......: 1291063	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMAXK1AE
		Analysis Time..: 18:56		MS Run #.......: 1291063	MDL............: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW15D-051

TOTAL Metals

Lot-Sample #...: E1J170291-002 **Matrix.......:** WATER
Date Sampled...: 10/17/01 09:15 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMAXP1AC
		Analysis Time..: 19:43		MS Run #.......: 1291063	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMAXP1AD
		Analysis Time..: 19:43		MS Run #.......: 1291063	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMAXP1AE
		Analysis Time..: 19:43		MS Run #.......: 1291063	MDL............: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW15S-051

TOTAL Metals

Lot-Sample #...: E1J170291-003 **Matrix.......:** WATER
Date Sampled...: 10/17/01 10:15 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMAXQ1AC
		Analysis Time..: 19:52		MS Run #.......: 1291063	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMAXQ1AD
		Analysis Time..: 19:52		MS Run #.......: 1291063	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMAXQ1AE
		Analysis Time..: 19:52		MS Run #.......: 1291063	MDL............: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW6D-051

TOTAL Metals

Lot-Sample #...: E1J170291-004 **Matrix.......:** WATER
Date Sampled...: 10/17/01 11:25 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMAXR1AC
		Analysis Time..: 20:00		MS Run #.......: 1291063	MDL...........: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMAXR1AD
		Analysis Time..: 20:00		MS Run #.......: 1291063	MDL...........: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMAXR1AE
		Analysis Time..: 20:00		MS Run #.......: 1291063	MDL...........: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW6B-051

TOTAL Metals

Lot-Sample #...: E1J170291-005 **Matrix.......:** WATER
Date Sampled...: 10/17/01 12:25 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMAXT1AC
		Analysis Time..: 20:08		MS Run #.......: 1291063	MDL............: 0.00060	
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMAXT1AD
		Analysis Time..: 20:08		MS Run #.......: 1291063	MDL............: 0.0010	
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMAXT1AE
		Analysis Time..: 20:08		MS Run #.......: 1291063	MDL............: 0.0040	

PHIBRO-TECH, INC.

Client Sample ID: PTI-MW14S-051

TOTAL Metals

Lot-Sample #...: E1J170291-006 **Matrix.......:** WATER
Date Sampled...: 10/17/01 14:30 **Date Received..:** 10/17/01 15:50

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMAXW1AC
		Analysis Time..: 20:17		MS Run #.......: 1291063	MDL...........: 0.00060	
Chromium	**0.14**	**0.010**	**mg/L**	**SW846 6010B**	**10/18-10/19/01**	**EMAXW1AD**
		Analysis Time..: 20:17		MS Run #.......: 1291063	MDL...........: 0.0010	
Copper	**0.042**	**0.025**	**mg/L**	**SW846 6010B**	**10/18-10/19/01**	**EMAXW1AE**
		Analysis Time..: 20:17		MS Run #.......: 1291063	MDL...........: 0.0040	

SEVERN TRENT SERVICES

QA/QC

QC DATA ASSOCIATION SUMMARY

E1J170291

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 9040B		1290527	1290278
	WATER	SW846 8260B		1293152	1293032
	WATER	SW846 6010B		1291182	1291063
002	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1290527	1290278
	WATER	SW846 8260B		1293152	1293032
	WATER	SW846 6010B		1291182	1291063
003	WATER	SW846 9040B		1290527	1290278
	WATER	SW846 8260B		1293152	1293032
	WATER	SW846 6010B		1291182	1291063
004	WATER	SW846 8270C SIM		1292556	
	WATER	SW846 9040B		1290527	1290278
	WATER	SW846 8260B		1293152	1293032
	WATER	SW846 6010B		1291182	1291063
005	WATER	SW846 9040B		1290527	1290278
	WATER	SW846 8260B		1293152	1293032
	WATER	SW846 6010B		1291182	1291063
006	WATER	SW846 9040B		1290527	1290278
	WATER	SW846 8260B		1293152	1293032
	WATER	SW846 6010B		1291182	1291063
007	WATER	SW846 8260B		1293152	1293032

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: E1J170291 **Work Order #...:** EMG681AA **Matrix.........:** WATER
MB Lot-Sample #: G1J190000-556
Prep Date......: 10/19/01 **Analysis Time..:** 18:25
Analysis Date..: 10/22/01 **Prep Batch #...:** 1292556

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,4-Dioxane	ND	1.0	ug/L	SW846 8270C SIM

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	78	(30 - 120)
Nitrobenzene-d5	86	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: E1J170291 **Work Order #...:** EMHXQ1AA **Matrix.........:** WATER
MB Lot-Sample #: E1J200000-152
Prep Date......: 10/19/01 **Analysis Time..:** 21:05
Analysis Date..: 10/19/01 **Prep Batch #...:** 1293152

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	ND	2.0	ug/L	SW846 8260B
1,2-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,3-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
m-Xylene & p-Xylene	ND	1.0	ug/L	SW846 8260B
o-Xylene	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	97	(75 - 120)
1,2-Dichloroethane-d4	96	(65 - 130)
Toluene-d8	96	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: E1J170291 **Matrix.........:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: E1J180000-182 **Prep Batch #...:** 1291182						
Cadmium	ND	0.0050	mg/L	SW846 6010B	10/18-10/19/01	EMCH11AA
		Analysis Time..: 18:30				
Chromium	ND	0.010	mg/L	SW846 6010B	10/18-10/19/01	EMCH11AC
		Analysis Time..: 18:30				
Copper	ND	0.025	mg/L	SW846 6010B	10/18-10/19/01	EMCH11AD
		Analysis Time..: 18:30				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: E1J170291 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,4-Dioxane	**10.0**	**4.32**	**ug/L**	**43**		**SW846 8270C SIM**
	10.0	**4.57**	**ug/L**	**46**	**5.6**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: E1J170291 **Work Order #...:** EMG681AC-LCS **Matrix.........:** WATER
LCS Lot-Sample#: G1J190000-556 EMG681AD-LCSD
Prep Date......: 10/19/01 **Analysis Date..:** 10/22/01
Prep Batch #...: 1292556 **Analysis Time..:** 18:46

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,4-Dioxane	**43**	**(30 - 120)**			**SW846 8270C SIM**
	46	**(30 - 120)**	**5.6**	**(0-35)**	**SW846 8270C SIM**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77	(30 - 120)
	75	(30 - 120)
Nitrobenzene-d5	84	(30 - 120)
	88	(30 - 120)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J170291 **Work Order #...:** EMHXQ1AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J200000-152
Prep Date......: 10/19/01 **Analysis Date..:** 10/19/01
Prep Batch #...: 1293152 **Analysis Time..:** 20:36

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	**10.0**	**10.0**	**ug/L**	**100**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.79**	**ug/L**	**98**	**SW846 8260B**
1,1-Dichloroethene	**10.0**	**9.63**	**ug/L**	**96**	**SW846 8260B**
Toluene	**10.0**	**9.62**	**ug/L**	**96**	**SW846 8260B**
Trichloroethene	**10.0**	**10.2**	**ug/L**	**102**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 120)
1,2-Dichloroethane-d4	93	(65 - 130)
Toluene-d8	100	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: E1J170291 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH			Work Order #: EMA2T1AA LCS Lot-Sample#: E1J170000-527				
	9.18	9.19	No Units	100	SW846 9040B	10/17/01	1290527
			Analysis Time..: 17:09				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J170291 **Matrix.........:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E1J180000-182 **Prep Batch #...:** 1291182							
Cadmium	0.0500	0.0487	mg/L	97	SW846 6010B	10/18-10/19/01	EMCH11AE
			Analysis Time..: 18:36				
Chromium	0.200	0.201	mg/L	100	SW846 6010B	10/18-10/19/01	EMCH11AF
			Analysis Time..: 18:36				
Copper	0.250	0.240	mg/L	96	SW846 6010B	10/18-10/19/01	EMCH11AG
			Analysis Time..: 18:36				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J170291 **Work Order #...:** EMHXQ1AC **Matrix.........:** WATER
LCS Lot-Sample#: E1J200000-152
Prep Date......: 10/19/01 **Analysis Date..:** 10/19/01
Prep Batch #...: 1293152 **Analysis Time..:** 20:36

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**100**	**(75 - 120)**	**SW846 8260B**
Chlorobenzene	**98**	**(80 - 120)**	**SW846 8260B**
1,1-Dichloroethene	**96**	**(70 - 130)**	**SW846 8260B**
Toluene	**96**	**(80 - 120)**	**SW846 8260B**
Trichloroethene	**102**	**(75 - 130)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	99	(75 - 120)
1,2-Dichloroethane-d4	93	(65 - 130)
Toluene-d8	100	(80 - 130)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J170291 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH		Work Order #: EMA2T1AA	LCS Lot-Sample#: E1J170000-527		
	100	(90 - 110)	SW846 9040B	10/17/01	1290527
		Analysis Time..: 17:09			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J170291 **Matrix.........:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: E1J180000-182 **Prep Batch #...:** 1291182					
Cadmium	97	(80 - 120)	SW846 6010B	10/18-10/19/01	EMCH11AE
		Analysis Time..: 18:36			
Chromium	100	(85 - 120)	SW846 6010B	10/18-10/19/01	EMCH11AF
		Analysis Time..: 18:36			
Copper	96	(80 - 120)	SW846 6010B	10/18-10/19/01	EMCH11AG
		Analysis Time..: 18:36			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: E1J170291 **Work Order #...:** EL82N1AF-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J160293-003 EL82N1AG-MSD
Date Sampled...: 10/16/01 08:45 **Date Received..:** 10/16/01 18:25 **MS Run #.......:** 1293032
Prep Date......: 10/20/01 **Analysis Date..:** 10/20/01
Prep Batch #...: 1293152 **Analysis Time..:** 06:01

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**ND**	**10.0**	**10.4**	**ug/L**	**104**		**SW846 8260B**
	ND	**10.0**	**10.4**	**ug/L**	**104**	**0.0**	**SW846 8260B**
Chlorobenzene	**ND**	**10.0**	**10.2**	**ug/L**	**102**		**SW846 8260B**
	ND	**10.0**	**10.2**	**ug/L**	**102**	**0.19**	**SW846 8260B**
1,1-Dichloroethene	**ND**	**10.0**	**9.64**	**ug/L**	**96**		**SW846 8260B**
	ND	**10.0**	**9.69**	**ug/L**	**97**	**0.51**	**SW846 8260B**
Toluene	**ND**	**10.0**	**9.89**	**ug/L**	**99**		**SW846 8260B**
	ND	**10.0**	**9.87**	**ug/L**	**99**	**0.20**	**SW846 8260B**
Trichloroethene	**ND**	**10.0**	**10.6**	**ug/L**	**106**		**SW846 8260B**
	ND	**10.0**	**10.4**	**ug/L**	**104**	**1.7**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
	98	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
	100	(65 - 130)
Toluene-d8	99	(80 - 130)
	99	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: E1J170291 **Matrix.........:** WATER
Date Sampled...: 10/17/01 07:45 **Date Received..:** 10/17/01 15:50

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J170291-001 **Prep Batch #...:** 1291182									
Cadmium									
	ND	0.050	0.0497	mg/L	99		SW846 6010B	10/18-10/19/01	EMAXK1AK
	ND	0.050	0.0481	mg/L	96	3.1	SW846 6010B	10/18-10/19/01	EMAXK1AL
			Analysis Time..: 19:26						
			MS Run #.......: 1291063						
Chromium									
	ND	0.200	0.207	mg/L	103		SW846 6010B	10/18-10/19/01	EMAXK1AM
	ND	0.200	0.202	mg/L	100	2.4	SW846 6010B	10/18-10/19/01	EMAXK1AN
			Analysis Time..: 19:26						
			MS Run #.......: 1291063						
Copper									
	ND	0.250	0.277	mg/L	107		SW846 6010B	10/18-10/19/01	EMAXK1AP
	ND	0.250	0.269	mg/L	104	3.0	SW846 6010B	10/18-10/19/01	EMAXK1AQ
			Analysis Time..: 19:26						
			MS Run #.......: 1291063						

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: E1J170291 **Work Order #...:** EL82N1AF-MS **Matrix.........:** WATER
MS Lot-Sample #: E1J160293-003 EL82N1AG-MSD
Date Sampled...: 10/16/01 08:45 **Date Received..:** 10/16/01 18:25 **MS Run #.......:** 1293032
Prep Date......: 10/20/01 **Analysis Date..:** 10/20/01
Prep Batch #...: 1293152 **Analysis Time..:** 06:01

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**104**	**(75 - 120)**			**SW846 8260B**
	104	**(75 - 120)**	**0.0**	**(0-25)**	**SW846 8260B**
Chlorobenzene	**102**	**(80 - 120)**			**SW846 8260B**
	102	**(80 - 120)**	**0.19**	**(0-25)**	**SW846 8260B**
1,1-Dichloroethene	**96**	**(70 - 130)**			**SW846 8260B**
	97	**(70 - 130)**	**0.51**	**(0-25)**	**SW846 8260B**
Toluene	**99**	**(80 - 120)**			**SW846 8260B**
	99	**(80 - 120)**	**0.20**	**(0-25)**	**SW846 8260B**
Trichloroethene	**106**	**(75 - 130)**			**SW846 8260B**
	104	**(75 - 130)**	**1.7**	**(0-25)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluorobenzene	101	(75 - 120)
	98	(75 - 120)
1,2-Dichloroethane-d4	100	(65 - 130)
	100	(65 - 130)
Toluene-d8	99	(80 - 130)
	99	(80 - 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: E1J170291 **Matrix.........:** WATER
Date Sampled...: 10/17/01 07:45 **Date Received..:** 10/17/01 15:50

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: E1J170291-001 **Prep Batch #...:** 1291182							
Cadmium	99	(80 - 120)			SW846 6010B	10/18-10/19/01	EMAXK1AK
	96	(80 - 120)	3.1	(0-20)	SW846 6010B	10/18-10/19/01	EMAXK1AL
		Analysis Time..: 19:26					
		MS Run #.......: 1291063					
Chromium	103	(85 - 120)			SW846 6010B	10/18-10/19/01	EMAXK1AM
	100	(85 - 120)	2.4	(0-20)	SW846 6010B	10/18-10/19/01	EMAXK1AN
		Analysis Time..: 19:26					
		MS Run #.......: 1291063					
Copper	107	(80 - 120)			SW846 6010B	10/18-10/19/01	EMAXK1AP
	104	(80 - 120)	3.0	(0-20)	SW846 6010B	10/18-10/19/01	EMAXK1AQ
		Analysis Time..: 19:26					
		MS Run #.......: 1291063					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: E1J170291 **Work Order #...:** EMAXK-SMP EMAXK-DUP **Matrix.......:** WATER

Date Sampled...: 10/17/01 07:45 **Date Received..:** 10/17/01 15:50

% Moisture.....: **Dilution Factor:** **Initial Wgt/Vol:**

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
pH						SD Lot-Sample #: E1J170291-001		
	7.1	7.1	No Units	0.38	(0-0.0)	SW846 9040B	10/17/01	1290527

Analysis Time..: 17:12 MS Run Number..: 1290278

SEVERN TRENT SERVICES

Subcontract Reports

Del Mar Analytical

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LABORATORY REPORT

Prepared For: STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705

Attention: Diane Suzuki
Project: E1J170291

Sampled: 10/17/01
Received: 10/17/01
Reported: 10/25/01

This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.

CA ELAP Certificate #1197
AZ DHS License #AZ0428

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000053

Del Mar Analytical

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J170291

Report Number: IKJ0659

Sampled: 10/17/01
Received: 10/17/01

INORGANICS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/l	mg/l				
Sample ID: IKJ0659-01 (PT1-MW3-051 - Water)								
Chromium VI	EPA 7199	I1J1753	0.0020	ND	1	10/17/01	10/17/01	
Sample ID: IKJ0659-02 (PT1-MW15D-051 - Water)								
Chromium VI	EPA 7199	I1J1753	0.0020	ND	1	10/17/01	10/17/01	
Sample ID: IKJ0659-03 (PT1-MW6D-051 - Water)								
Chromium VI	EPA 7199	I1J1753	0.0020	ND	1	10/17/01	10/17/01	
Sample ID: IKJ0659-04 (PT1-MW15S-051 - Water)								
Chromium VI	EPA 7199	I1J1753	0.0020	**0.0088**	1	10/17/01	10/17/01	
Sample ID: IKJ0659-05 (PT1-MW6B-051 - Water)								
Chromium VI	EPA 7199	I1J1753	0.0020	**0.0049**	1	10/17/01	10/17/01	
Sample ID: IKJ0659-06 (PT1-MW14S-051 - Water)								
Chromium VI	EPA 7199	I1J1753	0.0020	**0.083**	1	10/17/01	10/17/01	

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000054

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STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J170291

Report Number: IKJ0659

Sampled: 10/17/01
Received: 10/17/01

METHOD BLANK/QC DATA

INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: I1J1753 Extracted: 10/17/01										
Blank Analyzed: 10/17/01 (I1J1753-BLK1)										
Chromium VI	ND	0.0020	mg/l							
LCS Analyzed: 10/17/01 (I1J1753-BS1)										
Chromium VI	0.0520	0.0020	mg/l	0.0500		104	90-110			
Matrix Spike Analyzed: 10/17/01 (I1J1753-MS1)					**Source: IKJ0648-01**					
Chromium VI	0.0502	0.0020	mg/l	0.0500	ND	97.2	70-130			*P2*
Matrix Spike Dup Analyzed: 10/17/01 (I1J1753-MSD1)					**Source: IKJ0648-01**					
Chromium VI	0.0516	0.0020	mg/l	0.0500	ND	100	70-130	2.75	15	*P2*

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000055

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
7277 Hayvenhurst, Suite B-12, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851
2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

STL Los Angeles
1721 S. Grand Avenue
Santa Ana, CA 92705
Attention: Diane Suzuki

Project ID: E1J170291

Report Number: IKJ0659

Sampled: 10/17/01
Received: 10/17/01

DATA QUALIFIERS AND DEFINITIONS

P2	Sample received without chemical preservation, but preserved by the laboratory.
ND	Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
NR	Not reported.
RPD	Relative Percent Difference

Del Mar Analytical, Irvine
Pat Abe
Project Manager

000056

Appendix D
Completed COC Forms

CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 • FAX: (714) 894-7501

E1J180344

CHAIN OF CUSTODY RECORD

Date 10/18/2001

Page 1 of 1

LABORATORY CLIENT: CAMP DRESSER & MCKEE
ADDRESS: 18881 VON KARMAN
CITY IRVINE STATE ZIP
TEL: 949 752 5452 FAX: 949 752 1307 E-MAIL:

CLIENT PROJECT NAME / NUMBER: PHIBROTECH - PTI
P.O. NO.:
PROJECT CONTACT: JOHN BENNETT
LAB USE ONLY ☐☐-☐☐☐☐
SAMPLER(S): (SIGNATURE) [signature]
COOLER RECEIPT
TEMP = ______ °C

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___/___/___.

SPECIAL INSTRUCTIONS

000003

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or ___	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	VOCs (5035 / 8260B) EnCore	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	EOB / DBCP (504.1) or (8011)	CAC, T22 METALS (6010B)	PNAs (8310)	VOCs (TO-14A) or (TO-15)	CH4 / TGNMO (25.1)	FIXED GASES (25.1) or (D1946)	Cr(VI) 7199	pH	Cr-Cu-Cd	1,4-DIOXANE	
	PTI-MW4-051	(VOA)	10/18/01	08:30	W	3					X															
	↓	(125mL)	↓	↓	↓	1																X				
		(125mL)				1																	X			
		(500mL)				1																		X		
		(1L AMBER)				1																			X	
	PTI-MW35-051	(VOA)	10/18/01	08:30		3					X															
	↓	(125mL)	↓	↓	↓	1																X				
		(125mL)				1																	X			
		(500mL)				1																		X		
		(1L AMBER)				1																			X	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature]	[signature] Dependable	10/18/2001	14:35
[signature] Dependable ex	[signature]	10/18/01	15:32
	Received for Laboratory by: (Signature)		

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.
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7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

Date 10/18/2001

000004

LABORATORY CLIENT: CAmp DRESSER & MCKEE	CLIENT PROJECT NAME / NUMBER:	P.O. NO.:
ADDRESS:	PROJECT CONTACT:	LAB USE ONLY ☐☐-☐☐☐☐
CITY STATE ZIP	SAMPLER(S): (SIGNATURE)	COOLER RECEIPT TEMP = ___ °C
TEL: FAX: E-MAIL:		

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___ / ___ / ___.

SPECIAL INSTRUCTIONS

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or ___	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	VOCs (5035 / 8260B) EnCore	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	EOB / DBCP (504.1) or (8011)	CAC, T22 METALS (6010B)	PNAs (8310)	VOCs (TO-14A) or (TO-15)	CH4 / TGNMO (25.1)	FIXED GASES (25.1) or (D1946)	Cr(VI)	PH	Cl-Cu-Cd	1,4-DIOXANE	
	~~MW16~~ PTI-MW16-051	(VOA)	10/18/01	09:50	W	3					X															
	↓	(125ml)	↓	↓	↓	1																X				
		(125mL)				1																	X			
		(500 mL)				1																		X		
	PTI-MW09-051	(VOA)	10/18/01	11:15		3					X															
		(125mL)	↓	↓		1																X				
		(125 mL)				1																	X			
		(500mL) ~~(1L Amber)~~				1																		X		
		(1L AMBER)			↓	1																			X	

Relinquished by: (Signature) [signature]	Received by: (Signature) John Holguin Dependable X	Date: 10/18/2001	Time: 14:35
Relinquished by: (Signature) John Holguin Dependable X	Received by: (Signature) [signature]	Date: 10/18/01	Time: 15:32.
Relinquished by: (Signature)	Received for Laboratory by: (Signature)	Date:	Time:

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000005

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GARDEN GROVE, CA 92841-1432
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CHAIN OF CUSTODY RECORD

Date 10/18/01

Page 3 of 4

LABORATORY CLIENT: CAMP DRESSER & MCKEE

ADDRESS:

CITY STATE ZIP

TEL: FAX: E-MAIL:

CLIENT PROJECT NAME / NUMBER:

PROJECT CONTACT:

SAMPLER(S): (SIGNATURE)

P.O. NO.:

LAB USE ONLY ☐☐-☐☐☐☐

COOLER RECEIPT TEMP = ____ °C

TURNAROUND TIME ☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___ / ___ / ___.

SPECIAL INSTRUCTIONS

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or ___	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	VOCs (5035 / 8260B) EnCore	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	EOB / DBCP (504.1) or (8011)	CAC, T22 METALS (6010B)	PNAs (8310)	VOCs (TO-14A) or (TO-15)	CH_4 / TGNMO (25.1)	FIXED GASES (25.1) or (D1946)	Cr(VI) 7199	pH	Cr-Cd-Cu	1,4-DIOXANE
	PT1-MW37-051	(VOA)	10/18/01	11:15		3					X														
		(125 mL)	↓	↓		1																X			
		(125 mL)				1																	X		
		(500 mL)				1																		X	
		(1 L AMBER)				1																			X
	PT1-MW7-051	(VOA)		13:25		3					X														
		(125 mL)		↓		1																X			
		(125 mL)				1																	X		
		(500 mL)	↓			1																		X	

Relinquished by: (Signature) [signature]	Received by: (Signature) John Hodges Dependable	Date: 10/18/2001	Time: 14:35
Relinquished by: (Signature) John Hodges Dependable	Received by: (Signature) [signature]	Date: 10/18/01	Time: 15:32
Relinquished by: (Signature)	Received for Laboratory by: (Signature)	Date:	Time:

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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (602) 785-0043 FAX (602) 785-0851
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-9596 FAX (619) 505-9689

107920

CHAIN OF CUSTODY FORM

10/18/2001

Quote No.: ______

Client Name: Camp Dressor & McKee	P.O./Project Number:
Address:	Project Name:
City: State: Zip:	Project Manager:
Tel: Fax.:	Sampler(s) (signature):

Sample I.D.	Matrix	Date Sampled	Time	Preservation	Number of Containers	Type of Containers	8015 (Gas) 8020 (BTEX)	MTBE (8020) 8015/8020/MTBE	8015 (Diesel) simulated distillation fuel fingerprint	Oil & Grease - EPA 413.2	TRPH - EPA 418.1	EPA 8010 EPA 8010/8020	EPA 8270	Title 22 Metals EPA 6010/7000 +Cr VI	EPA 8260 + Oxygenates +MTBE MTBE only	Lead	pH	Cr(VI) 7199	T Cr-Cd-Cu	1,4-Dioxane			
PTI-MW11-051	W	10/18/01		HCl	3	VOA									X								
				None	1	125											X						
				NaOH ~~HNO3~~	1	125												X					
				HNO3	1	500													X				
				None	1	1L														X			
PTI-EB02-051	W	10/18/01	12:40	HCl	3	VOA									X								
			12:40	None	1	125											X						
				NaOH	1	125												X					
				HNO3	1	500													X				
				None	1	1L														X			

Relinquished by: [signature]	Date/Time: 10/18/2001 14:35	Received by: Jeh Hodges Dependable X	Date/Time: 10/18/01 14:35	Turnaround Time: (check one): Same Day ___ 72 hours ___
Relinquished by: Jeh Hodges Dependable X	Date/Time: 10/18/01 [illegible]	Received by: [signature]	Date/Time: 10/18/01 15:32	24 Hours ___ 5 Days ___ 48 Hours ___ Standard ___
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity: Intact: ___ On Ice ___
Remarks:				

000006

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days.

COC-GT

[redacted]

Chain of Custody Record

SEVERN TRENT SERVICES Severn Trent Laboratories, Inc.

STL-4124 (0700)

Client: STL LA	Project Manager: Diane Suzuki	Date: 10/18/01	Chain of Custody Number: 049567
Address: 1721 S Grand Ave	Telephone Number (Area Code)/Fax Number: (714) 2588610 Ext 309	Lab Number: E J180344	Page 1 of 1
City: Santa Ana State: CA Zip Code: 92705	Site Contact: Lab Contact:	Analysis (Attach list if more space is needed)	
Project Name and Location (State): Primo Tech	Carrier/Waybill Number:		Special Instructions/ Conditions of Receipt
Contract/Purchase Order/Quote No.			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Cr VI 7199	Special Instructions/Conditions of Receipt
PT1-MW4-051	10/18/01	8:30		X							1		X	
PT1-MW35-051	↓	8:30		↓							↓		↓	
PT1-MW16-051	↓	9:50		↓							↓		↓	
PT1-MW09-051	↓	11:15		↓							↓		↓	
PT1-MW37-051	↓	11:15		↓							↓		↓	
PT1-MW7-051	↓	13:25		↓							↓		↓	
PT1-MW11-051	↓	14:30		↓							↓		↓	
(~~PT1-MW~~) void														
PT1-EB02-051	↓	12:40		↓							↓		↓	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☒ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other______

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	10/18/01	1120	1. Received By: [signature]	10-18-01	1120
2. Relinquished By: [signature]	10-18-01	1745	2. Received By		
3. Relinquished By			3. Received By: Helen Rueda	10-18-01	17:45

Comments: Temp 1°C Intact: Yes

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

000067

CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 • FAX: (714) 894-7501

97577.7

CHAIN OF CUSTODY RECORD

Date 10/16/2001

Page 1 of 1

LABORATORY CLIENT: Camp Dresser & McKee	CLIENT PROJECT NAME / NUMBER: PhiBroTech 2279-11462111.FED
ADDRESS: 18881 Von Karman #650	P.O. NO.:
CITY Irvine STATE CA ZIP 92715	PROJECT CONTACT: John Bennett
TEL: 949 752 5452 or 714.272.1201 FAX: E-MAIL:	SAMPLER(S): (SIGNATURE)
	LAB USE ONLY ☐☐-☐☐☐☐
	COOLER RECEIPT TEMP = ____ °C

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS NORMAL

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___ / ___ / ___.

SPECIAL INSTRUCTIONS

000003

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or ___	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	VOCs (5035 / 8260B) EnCore	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	EDB / DBCP (504.1) or (8011)	CAC, T22 METALS (6010B)	PNAs (8310)	VOCs (TO-14A) or (TO-15)	CH4 / TGNMO (25.1)	FIXED GASES (25.1) or (D1946)	~~1,4-DIOXANE~~	Cr(VI) 7199	pH	Cr-Cu-Cd	1,4-DIOXANE
	MW15-101601	VOA	10/16/01	13:15	W	3					X															
						1																	X			
						1																		X		
		500 mL				1																			X	
	~~MW1D-10/16/01~~		~~10/16/01~~	~~14:30~~		~~3~~																				
		Amber 1L				1																				X
	MW1D-10/16/01		10/16/01	14:30		3					X															
						1																	X			
						1																		X		
						1																			X	

Relinquished by: (Signature)	Received by: (Signature)	Date: 10/16/01	Time: 14:50
Relinquished by: (Signature) Henry Bonnet	Received by: (Signature)	Date: 10/16/01	Time: 16:10
Relinquished by: (Signature)	Received for Laboratory by: (Signature)	Date:	Time:

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10/01/00 Revision

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Chain of Custody Record

SEVERN TRENT SERVICES Severn Trent Laboratories, Inc.

STL-4124 (0700)

Client	Project Manager	Date	Chain of Custody Number
STL LA	Diane Suzuki	10/16/2001	049559
Address	**Telephone Number (Area Code)/Fax Number**	**Lab Number**	**Page**
1721 S Grand Ave		E1J160281	Page 1 of 1

City	State	Zip Code	Site Contact	Lab Contact
Santa Ana	CA	92705		D Suzuki

Project Name and Location (State)	Carrier/Waybill Number
PTI Santa Fe Springs	

Contract/Purchase Order/Quote No.

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		Analysis (Attach list if more space is needed): 7196 CrVI												Special Instructions/ Conditions of Receipt
MW15-101601	10/16/01	1315		X				1							X												
MW1D-101601	"	1430		X				1							X												

000040

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other 10 DAYS

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By [signature]	10/16/01	1843	1. Received By [signature]	10/16/01	18:43
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Comments
intact 3°C

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

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GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 • FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

Date 10/18/01

Page 1 of

E1J180165

LABORATORY CLIENT: Camp Dresser & McKee	CLIENT PROJECT NAME / NUMBER: PHI Biotech-PTI
ADDRESS: 18881 Von Karman	P.O. NO.:
CITY: Irvine STATE ZIP	PROJECT CONTACT:
TEL: 949 752 5452 FAX: 949 752 1307 E-MAIL:	LAB USE ONLY ☐☐-☐☐☐☐
	SAMPLER(S): (SIGNATURE)
	COOLER RECEIPT TEMP = °C

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS STANDARD

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___ / ___ / ___.

SPECIAL INSTRUCTIONS

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or ___	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	VOCs (5035 / 8260B) EnCore	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	EOB / DBCP (504.1) or (8011)	CAC, T22 METALS (6010B)	PNAs (8310)	VOCs (TO-14A) or (TO-15)	CH_4 / TGNMD (25.1)	FIXED GASES (25.1) or (D1946)	pH	Cr(VI) 7199	1,4-Dioxane	Cr-Cu-Cd	Hg
	~~MW~~ PTI-MW4A-051		10/17/01	15:35	W	3					X															
	↓		↓		↓	1																X				
						1																	X			
		(1L Amber)				1																		~~X~~		X
						1																			X	
	PTI-DI01-051		10/17/01	14:45		3					X															
	↓		↓	↓	↓	1																X				
						1																	X			
						1																		X		
						1																			X	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
[signature]	[signature]	10/18/2001	08:30
Relinquished by: (Signature)	Received by: (Signature)	Date: 10/18/01	Time: 9:20
Relinquished by: (Signature)	Received for Laboratory by: (Signature)	Date:	Time:

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000004

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CHAIN OF CUSTODY RECORD

Date 10/18/2001

Page 2 of 2

LABORATORY CLIENT: CAMP DRESSER & McKEE

ADDRESS:

CITY | STATE | ZIP

TEL: | FAX: | E-MAIL:

CLIENT PROJECT NAME / NUMBER:

PROJECT CONTACT:

SAMPLER(S): (SIGNATURE)

P.O. NO.:

LAB USE ONLY ☐☐-☐☐☐☐

COOLER RECEIPT
TEMP = ____ °C

TURNAROUND TIME
☐ SAME DAY ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)
☐ RWQCB REPORTING ☐ ARCHIVE SAMPLES UNTIL ___ / ___ / ___.

SPECIAL INSTRUCTIONS

REQUESTED ANALYSES

LAB USE ONLY	SAMPLE ID	LOCATION/DESCRIPTION	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	TPH (G)	TPH (D) or ___	BTEX / MTBE (8021B)	HALOCARBONS (8021B)	VOCs (8260B)	VOCs (5035 / 8260B) EnCore	SVOCs (8270C)	PEST (8081A)	PCBs (8082)	EOB / DBCP (504.1) or (8011)	CAC, T22 METALS (6010B)	PNAs (8310)	VOCs (TO-14A) or (TO-15)	CH4 / TGNMO (25.1)	FIXED GASES (25.1) or (D1946)	pH	Cr(VI) 7199	1,4-DIOXANE	Cr-Cu-Cd
	PTI-EB01-051		10/17/01	14:45	W	3					X		X												
						1																X			
						1																	X		
						1																		X	
						1																			X

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		10/18/2001	08:30
Relinquished by: (Signature)	Received by: (Signature)	Date: 10/18/01	Time: 9:20
Relinquished by: (Signature)	Received for Laboratory by: (Signature)	Date:	Time:

Q&Q Graphic (714) 898-9702

DISTRIBUTION: White with final report, Green to File, Yellow and Pink to Client.
Please note that pages 1 and 2 of 2 of our T/Cs are printed on the reverse side of the Yellow and Pink copies respectively.

10/01/00 Revision

Del Mar Irvine

Chain of Custody Record

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-4124 (0700)

Client	STL LOS ANGELES
Address	1721 S Grand Ave
City	Santa Ana
State	CA
Zip Code	92705
Project Name and Location (State)	EIJ/80165
Contract/Purchase Order/Quote No.	
Project Manager	Diane Suzuki
Telephone Number (Area Code)/Fax Number	(714) 258-8610 X 309
Site Contact	
Lab Contact	
Carrier/Waybill Number	
Date	10/18/01
Chain of Custody Number	049348
Lab Number	
Page	1 of 1

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Matrix: Aqueous	Matrix: Sed.	Matrix: Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): Cr6 by 7199	Special Instructions/ Conditions of Receipt
PTI-MW4A-051	10/17/01	1535		X							4		X	
PTI-DI01-051	10/17/01	1445		X							4		X	
PTI-EB01-051	10/17/01	1445		X							4		X	

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☒ 7 Days BD ☐ 14 Days ☐ 21 Days ☐ Other ______

QC Requirements (Specify): 4°

	Date	Time		Date	Time
1. Relinquished By: [signature]	10-18-01	1050	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By: Laura Molga	10/18/01	10:50

Comments: NO "J" FLAGS

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Del Mar Analytical

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (602) 785-0043 FAX (602) 785-0851
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-9596 FAX (619) 505-9689

107923

CHAIN OF CUSTODY FORM

10/17/2001 Quote No.: ______ Page: 1 of 3

Client Name: CAMP DRESSER & MCKEE	P.O./Project Number: 2279-11462-111. FLD. FED
Address: 18881 Von Karman	Project Name: PTI
City: IRVINE State: CA Zip:	Project Manager: SHARON WALLIN
Tel: 949 752 5452 Fax.: 949 752 1307	Sampler(s) (signature):

000003

Sample I.D.	Matrix	Date Sampled	Time	Preservation	Number of Containers	Type of Containers	8015 (Gas) 8020 (BTEX) / MTBE (8020) / 8015/8020/MTBE	8015 (Diesel) simulated distillation / fuel fingerprint	Oil & Grease - EPA 413.2	TRPH - EPA 418.1	EPA 8010 / EPA 8010/8020	EPA 8270	Title 22 Metals EPA 6010/7000 +Cr VI	EPA 8260 [X] + Oxygenates +MTBE / MTBE only	Lead	pH	Cr(VI) 7199	1,4-DIOXANE	Cr-Cu-Cd				
PTI-MW3-051	W	10/17/01	07:45		3	VOA								X									
					1	125										X							
					1	125											X						
					1	1L												X	X				
					1	500													X				
PTI-MW15D-051			09:15		3	VOA								X									
					1	125										X							
					1	125											X						
					1	1L												X					
					1	500													X				

Relinquished by:	Date/Time: 10/17/2001 15:00	Received by:	Date/Time: 10-18-2001 3:00	Turnaround Time: (check one): Same Day ___ 72 hours ___
Relinquished by:	Date/Time:	Received by:	Date/Time: 10/17/01 15:50	24 Hours ___ 5 Days ___ 48 Hours ___ Standard X
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	
Remarks:				Sample Integrity: Intact: ___ On Ice ___

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days.

COC-GT

Del Mar Analytical
2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (602) 785-0043 FAX (602) 785-0851
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-9596 FAX (619) 505-9689

107921

CHAIN OF CUSTODY FORM

10/17/2001 Quote No.: ______

Client Name: Camp Dresser & McKee	P.O./Project Number:
Address: 18881 Von Karman	Project Name:
City: Irvine State: CA Zip:	Project Manager:
Tel: Fax.:	Sampler(s) (signature):

0000004

Sample I.D.	Matrix	Date Sampled	Time	Preservation	Number of Containers	Type of Containers	8015 (Gas) / 8020 (BTEX)	MTBE (8020) / 8015/8020/MTBE	8015 (Diesel) / simulated distillation / fuel fingerprint	Oil & Grease - EPA 413.2	TRPH - EPA 418.1	EPA 8010	EPA 8010/8020	EPA 8270	Title 22 Metals EPA 6010/7000 +Cr VI	EPA 8260 ☒ + Oxygenates / +MTBE / MTBE only	Lead	pH	Cr(VI) 7199	1,4-Dioxane	Cr-Cu-Cd				
PTI-MW155-051	W	10/17/01	10:15		3	VOA										X									
					1	125												X							
					1	125													X						
																				~~X~~					
						500															X				
PTI-MW-6D-051						VOA										X									
						125												X							
						125													X						
						1L														X					
						500															X				

Relinquished by:	Date/Time: 10/17/2001 15:00	Received by: B V Sperf	Date/Time: 10-17-2001 3:00	Turnaround Time: (check one): Same Day ___ 72 hours ___
Relinquished by:	Date/Time:	Received by:	Date/Time: 10/17/01 15:52	24 Hours ___ 5 Days ___ / 48 Hours ___ Standard X
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity: Intact: ___ On Ice ___
Remarks:				

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days.

COC-GT

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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (602) 785-0043 FAX (602) 785-0851
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-9596 FAX (619) 505-9689

107922

CHAIN OF CUSTODY FORM

Quote No.: ________

Client Name: CAMP DRESSER & MCKEE	P.O./Project Number:
Address:	Project Name:
City: State: Zip:	Project Manager:
Tel: Fax.:	Sampler(s) (signature):

000005

Sample I.D.	Matrix	Date Sampled	Time	Preservation	Number of Containers	Type of Containers	8015 (Gas) / 8020 (BTEX) / MTBE (8020) / 8015/8020/MTBE	8015 (Diesel) / simulated distillation / fuel fingerprint	Oil & Grease - EPA 413.2	TRPH - EPA 418.1	EPA 8010 / EPA 8010/8020	EPA 8270	Title 22 Metals EPA 6010/7000 +Cr VI	EPA 8260 ☒ + Oxygenates / +MTBE / MTBE only	Lead	pH	Cr(VI) 7199	1,4-DIOXANE	Cr-Cu-Cd				
PTI-MW6B-051	W	10/17/01	12:05	HCl	3	VOA								X									
↓	↓	↓	↓	NONE	1	125										X							
				NONE	1	125											X						
				HNO3	1	~~12~~ 500													X				
PTI-MW14S-051			14:30	HCl	3	VOA								X									
↓			↓	NONE	1	125										X							
				NONE	1	125											X						
				HNO3	1	500													X				
	↓	↓																					

Relinquished by: [signature]	Date/Time: 10/17/2001 15:00	Received by: B U [signature]	Date/Time: 10-17-2001 3:00	Turnaround Time: (check one): Same Day ___ 72 hours ___
Relinquished by:	Date/Time:	Received by: [signature]	Date/Time: 10.17.01 15.50	24 Hours ___ 5 Days ___
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	48 Hours ___ Standard X
Remarks:				Sample Integrity: Intact: ___ On Ice ___

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of the invoice. Sample(s) will be disposed of after 30 days.

COC-GT

[redacted]

Chain of Custody Record

STL-4124 (0700)

SEVERN TRENT SERVICES Severn Trent Laboratories, Inc.

Client: STL LA	Project Manager: Diane Suzuki	Date: 10/17/01	Chain of Custody Number: 049561
Address: 1721 S Grand Ave	Telephone Number (Area Code)/Fax Number: (714) 258 8610 Ext 309	Lab Number: E7J170291	Page 1 of 1
City: Santa Ana State: CA Zip Code: 92705	Site Contact:	Lab Contact:	
Project Name and Location (State): Phibrotech / CDM	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed): Cr VI 7199

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Cr VI 7199	Special Instructions/Conditions of Receipt
PTI-MW3-051	10/17/01	7:45		X							1		X	#001
PTI-MW15D-051	↓	9:15		X							1		↓	2
PTI-MW6D-051	↓	11:25		X							1		↓	4
PTI-MW15S-051	↓	10:15		X							1		↓	3
PTI-MW6B-051	↓	12:25		X							1		↓	5
PTI-MW14S-051	↓	1430		X							1		X	6

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☐ Other 10 days

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	10/17/01	16:30	1. Received By: [signature]	10/17/01	1745
2. Relinquished By: [signature]	10-17-01	1810	2. Received By:		
3. Relinquished By:			3. Received By: [signature]	10/17/01	18:10

Comments: intact 4°C.

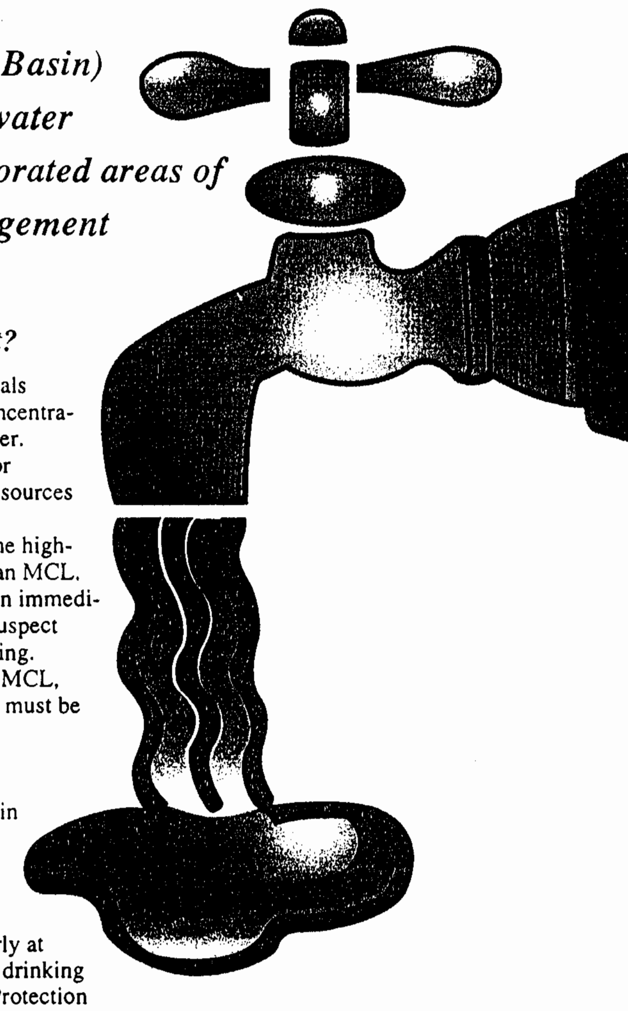
DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

000253

Appendix E
Background Groundwater Concentrations, Santa Fe Springs 1999

1999 Water Quality Report

This Annual Report is prepared by Central Basin Municipal Water District (Central Basin) as a service to the City of Santa Fe Springs. Central Basin provides imported surface water from the Metropolitan Water District of Southern California to 26 cities and unincorporated areas of Los Angeles County. Central Basin contributes to improving groundwater basin management through water quality, conservation and education programs.



Q Where does my drinking water come from?

A Your tap water comes from one or two major sources: groundwater and surface water. Your system pumps groundwater from one or more deep wells located predominately withing its service area. Your system may also use Metropolitan Water District of Southern California's imported surface water from the Colorado River and the State Water Project in Northern California. The quality of your system's groundwater is presented in this report. If your system used imported surface water in 1999, its quality is also described.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- Microbial contaminants, including viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming;
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems;
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

To ensure quality tap water, USEPA and the California Department of Health Services (CDHS) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDHS regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Q Why do I see so much news coverage about the quality of tap water?

A All drinking water, including bottles water, may reasonably be expected to contain at least small amounts of some contaminants. As water travels over the surface of the land or through the ground, it can pick up substances resulting from the presence of animals or from human activity. The presence of contaminants does not necessarily indicate that water poses a health rick. More information about contaminants and potential health effects can be obtained by calling the federal Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

Q How is my drinking water tested?

A Your drinking water is protected from unsafe levels of chemicals and bacteria by regularly scheduled testing.Drinking water wells are tested weekly, monthly, quarterly, annually, or up to once every five years depending on the type of chemical, the vulnerability of the well to nearby potential sources of contamination, and historic water quality information. Wells that may have the potential to be contaminated are tested more frequently. Testing intervals are set by the California Department of Health Services.

Central Basing Municipal Water District administers the testing program for your water supplier's wells. A state-certified laboratory collects and tests well samples. The Metropolitan Water District extensively tests the quality of imported surface water separately. Your water supplier also tests its distribution system for bacteria, color, odor, appearance and disinfection by-products, and for lead and copper at selected customer's taps. Water quality testing is performed by state-certified laboratories and trained specialists.

Q What are drinking water standards?

A The federal Environmental Protection Agency sets regulations, or standards, that limit the amount of certain contaminants in tap water. In California, the Department of Health Services regulates tap water quality by enforcing standards that are at least as stringent as federal EPA standards.Historically, California standards are more stringent than the federal counterparts.

There are two types of standards. Primary standards protect you from chemicals that could potentially affect your health, such as toxic metals, pesticides, industrial solvents, and radioactive constituents.Secondary standards regulate chemicals that affect the aesthetic qualities of water, such as taste, odor and appearance. Regulations set a Maximum Contaminant Level (MCL) for each of the primary and secondary standards. The MCL is the highest level of a contaminant that is allowed in drinking water. Water suppliers must ensure water quality by complying with MCLs. Not all chemicals are regulated with MCLs. Lead and copper, for instance, are regulated by an Action Level. If either chemical exceeds its action level, a treatment process is required to reduce the levels in drinking water.

Public Health Goals (PHGs) are set by the California Environmental Protection Agency. PHGs provide more information on the quality of drinking water to customers, and are similar to their federal counterparts, Maximum Contaminant Level Goals (MCLGs). PHGs and MCLGs are levels that are of an advisory nature only.

Q How do I read the Water Quality Report?

A The first column of the water quality table lists chemicals detected in your water. The next column list the average concentration and range of concentrations found in your drinking water.

Following this are columns that list the MCL and PHG or MCLG, if appropriate. The last column describes the likely sources of contaminants in drinking water.

To review the quality of your drinking water, compare the highest concentration and MCL. Check for chemicals greater than MCL. Exceedence of a primary MCL does not usually constitute an immediate health threat. Rather, it requires the supplier to test the suspect well intensely for a short duration to confirm the initial finding. Confirming test results are averaged and, if greater than the MCL, the well must be treated to remove the chemical, or the well must be removed from service.

Q Should I take additional precautions?

A Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The Environmental Protection Agency/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection of Cryptosporidium and other microbial contaminants are available from the federal EPA's Safe Drinking Water Hotline (1-800-426-4791).

Q How can I participate in decisions on water issues that affect me?

A In the City of Santa Fe Springs, the public is welcome to attend City Council meetings on the second and fourth Thursday of each month at 7:00 p.m.

For More Information:
If you have specific questions about your system's drinking water quality, please contact:Ron Hughes at (562) 868-0511
Esto es una informacion importante.Por favor, si lo pueden traducir.

Results are from the most recent testing performed in accordance with state and federal drinking water regulations.

PRIMARY STANDARDS MANDATED FOR PUBLIC HEALTH		GROUNDWATER		SURFACE WATER		PRIMARY	MCLG	MAJOR SOURCES IN DRINKING WATER
		AVERAGE	RANGE	%<0.5	RANGE	MCL	or PHG	
CLARITY								
TURBIDITY (ntu) (a)		0.4	0.1-39	100%	0.09-0.1	TT	-	Soil runoff
MICROBIOLOGICAL (% POSITIVE)		AVERAGE	RANGE	AVERAGE	RANGE			
TOTAL COLIFORM BACTERIA (a)		0%	0%	0.04%	0-0.2%	5	0	Naturally present in the environment
FECAL COLIFORM BACTERIA (a)		0%	0%	0%	0%	0	0	Human and animal fecal waste
NO. OF ACUTE VIOLATIONS		0	0	0	0			
ORGANIC CHEMICALS (µg/l)								
TRICHLOROETHYLENE - TCE		1.2	ND-3.4	ND	ND	5	0	Discharge from metal degreasing sites and other factories
TRIHALOMETHANES, TOTAL-TTHMS (a) (b)		2	27-45	37	24-51	100	0	By-product of drinking water chorination
INORGANICS	Date Sampled (e)							
ARSENIC (µg/l)	1998-1999	4	ND-7	2	ND-3	50	-	Erosion of natural deposits, glass and electronics production wastes
COPPER (mg/l)	30 sites in 1998	0.34 (c)	ND-0.68	ND (c)	ND	1.3 AL	0.17 (d)	Corrosion of household plumbing
FLUORIDE (mg/l)	1998-1999	0.29	0.27-0.31	0.26	0.22-0.32	2	1 (d)	Erosion of natural deposits, water additive that promotes strong teeth
LEAD (µg/l)	30 sites in 1998	ND (c)	ND	ND (c)	ND	15 AL	2 (d)	Corrosion of household plumbing
NITRATE (mg/l as N)	1999	0.9	ND-1.8	ND	ND	10	10 (d)	Leaking from septic tanks and sewage; erosion of natural deposits
ALUMINUM (mg/l)	1998-1999	ND	ND	0.15	0.09-0.25	1	-	Erosion of natural deposits, surface water treatment process residue
RADIOLOGICAL - pCi/l	Analyzed 4 consecutive quarters every 4 years (results are from 1996 to 1999)							
GROSS ALPHA (h)		1.9	ND-6.6	4.9	2.4-8.1	15 (h)	0	Erosion of natural deposits
GROSS BETA		NA	NA	6.7	6.1-10.6	50 (h)	0	Decay of natural and man-made deposits
URANIUM		5.3	4.5-6.0	3.3	ND-4.8	20 (h)	0	Erosion of natural deposits

SECONDARY STANDARDS FOR AESTHETIC PURPOSES	GROUNDWATER		SURFACE WATER		PRIMARY	MCLG	MAJOR SOURCES IN DRINKING WATER
	AVERAGE	RANGE	AVERAGE	RANGE	MCL	or PHG	
CHLORIDE (mg/l)	50	34-66	71	65-78	500	-	Erosion of natural deposits, seawater influence
UNITS OF COLOR (a)	3	ND-10	2	1-2	15	-	Naturally-occurring oragnic materials
THRESHOLD ODOR NO. (ton) (a)	1	1-2	(f)	(f)	3	-	Naturally-occurring oragnic materials
CONDUCTIVITY (umhos/cm)	655	470-840	835	781-938	1600	-	Seawater influence, disolved minerals
SULFATE (mg/l)	112	54-170	195	175-234	500	-	Erosion of natural deposits
TOTAL DISSOLVED SOLIDS (mg/l)	399	262-535	514	478-588	1000	-	Erosion of natural deposits
MANGANESE (µg/l)	13	ND-26	ND	ND	50	-	Erosion of natural deposits

ADDITIONAL CONSTITUENTS OF INTEREST	GROUNDWATER		SURFACE WATER	
	AVERAGE	RANGE	AVERAGE	RANGE
pH (std unit)	7.8	7.6-8.0	8.1	8.0-8.1
TOTAL HARDNESS (mg/l)	221	105-337	250	228-289
CALCIUM (mg/l)	67	34-99	62	56-73
MAGNESIUM (mg/l)	13	5-22	24	22-27
SODIUM (mg/l)	60	53-67	77	70-87
POTASSIUM (mg/l)	2.9	2.2-3.6	3.8	3.6-4.1
PERCHLORATE (µg/l) (i)	ND	ND	ND	ND-6
HALOACETIC ACIDS (µg/l)	NA	NA	28	9.5-31
HALOACETONITRILES (µg/l)	NA	NA	7.7	4.8-12
CHLOROPICRIN (µg/l)	NA	NA	0.1	ND-0.4
HALOKETONES (µg/l)	NA	NA	1.7	1-3.2
CHLORAL HYDRATE (µg/l)	NA	NA	4.0	1.5-6.8
TOTAL ORGANIC HALOGENS (TOX) (µg/l)	NA	NA	15	72-174
CYANOGEN CHLORIDE (µg/l)	NA	NA	1.9	ND-3.1
RADON (pCi/l)	228	171-318	ND	ND-141

FOOTNOTES

(a) Compliance samples collected from points in the distribution system.
(b) Average and range calculated by running average.
(c) 90th percentile from the most recent sampling at selected customer taps.
(d) California Public Health Goal (PHG). Other advisory levels listed in this column are federal Maximum Contaminant Level Goals (MCLGs).
(e) Indicates dates sampled for groundwater sources only.
(f) Metropolitan Water District of Southern California uses a flavor-profile test that more accurately detects odors.
(g) Gross alpha standard also includes Radium-226 standard.
(h) MCL compliance based on 4 consecutive quarters of sampling. MCL standard is for combined Radium 226 plus 228.
(i) The California Department of Health Services set an Action Level of 18 µg/l in May 1997 and is evaluating perchlorate as a state primary drinking water standard. Health effects to date show that perchlorate affects the thyroid gland.

SPECIAL NOTE ON RADON: Radon is a radioactive gas that you cannot taste, see or smell, and is a known human carcinogen. It is found throughout the country. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering and other household activities. Radon entering the home through tap water is a small source compared to radon entering the home through soil. Tap water contributes less than 5% of the total amount of radon in indoor air. If you are concerned about radon in your home, an easy and inexpensive test can show you how much radon is in your home's indoor air. There are simple and inexpensive ways to fix your home if the level of radon in the air is 4 picoCuries per liter (pCI/L) of air or higher. For additional information, call your State radon program or call EPA's Radon Hotline (800-SOS-RADON).

TERMS:

Maximum Contaminant Level (MCL): The highest level of a contaminent that is allowed in drinking water. Primary MCLs are set as close to the PHGs (MCLGs) as is economically and technology feasible. Secondary MCLs are set to protect the odor, taste and appearance of drnking water.

Maximum Contaminant Level Goal (MCLG): The level of a containinent in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

Public Health Goal or PHG: The level of a contaminent in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency

Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Primary Drinking Water Standard or PDWS: MCLs for contaminents that affect health along with their monitoring and reporting requirements, and water treatment requirements.

mg/l = milligrams per liter (parts per million)
µg/l = micrograms per liter (parts per billion)
pCi/l = picoCuries per liter
umhos/cm = micromhos per centimeter
ND = constituent not detected at the reporting limit
NA = constituent not analyzed
< = constituent not detected in any samples at the reporting limit

Appendix F
Statistical Analysis

Appendix F-1
Upper Tolerance Level Calculations

SUMMARY OF UPPER TOLERANCE LEVEL CALCULATIONS
Quarterly Background Data: January 1989 to October 2001
Southern California Chemical

POISSON DISTRIBUTED UPPER TOLERANCE LEVEL

COMPOUND	Hexa Chromium	Total Chromium	Cadmium	Copper	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Trichloroethene
Percent Detected	4.0%	10.0%	2.0%	22.0%	2.0%	8.0%	26.0%	28.0%	NOT
Sample number(n)	50	50	50	50	50	50	50	50	CALC.
Tn	0.5812	0.4301	0.1384	0.7243	16.6550	29.1050	43.7050	76.9550	
2Tn+2	3.16	2.86	2.28	3.45	35.31	60.21	89.41	155.91	
Chi Squared @95% of dist.	7.81	5.99	5.99	7.81	49.80	79.08	112.02	185.05	
lamda Tn	0.247	0.171	0.136	0.269	17.585	47.615	100.159	288.515	
Two time Lamda Tn	0.494	0.343	0.273	0.539	35.170	95.230	200.318	577.030	
Beta cov. @95%, deg fr.	4	3	3	4	51	120	235	635	
k, from 2k+2 deg fr.	1.00	0.50	0.50	1.00	24.50	59.00	116.50	316.50	

AITCHISON ADJUSTMENT AND CALCULATION OF UPPER TOLERANCE LEVELS

Number of ND(d)	NOT	45	NOT	39	NOT	46	37	36	NO ADJ. REQ.
Number of values(n)	CALC.	50	CALC.	50	CALC.	50	50	50	
Mean of det values		0.03962		0.029		1.650	1.977	4.050	
STD of det values		0.040		0.010		0.420	0.738	1.435	
Atch. Adj. mean/mean(1)		0.004		0.006		0.132	0.514	1.134	11.894
Atch. Adj. std./std. (1)		0.017		0.013		0.464	0.949	1.980	5.072
K for Tolerance Limit		2.132		1.812		2.353	1.782	1.771	1.677
Adjusted Tol. Limit		0.039		0.030		1.224	2.206	4.640	
Unadjusted Tol. Limit									20.397

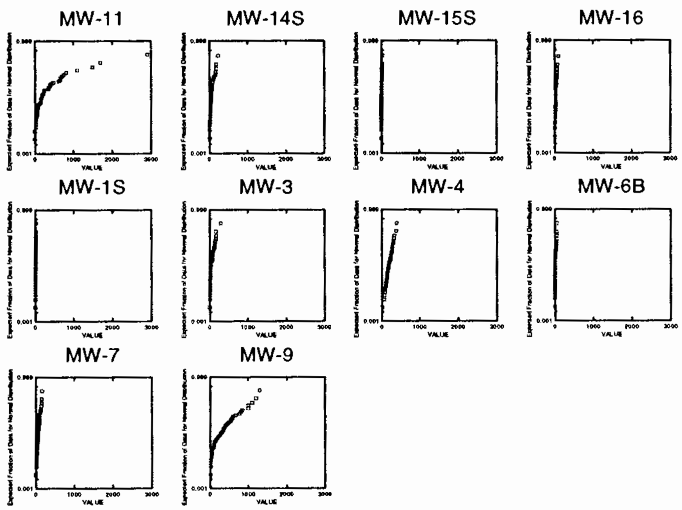
(1) Unadjusted mean and std. used to compute upper tolerance level for TCE

Appendix F-2
Probability Plots

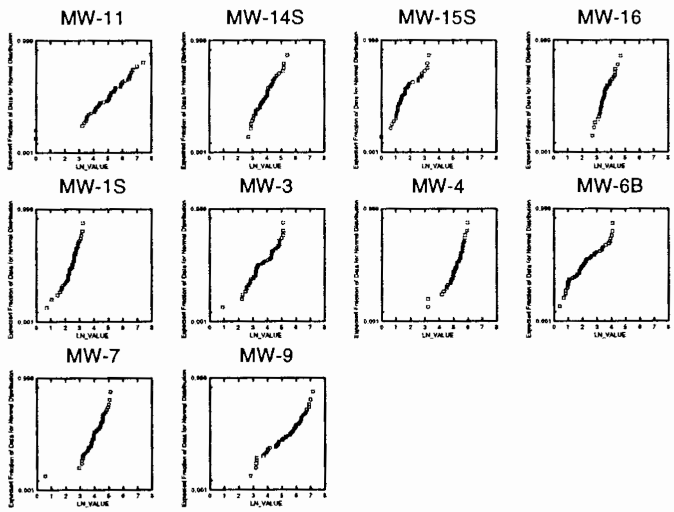
IMPORT successfully completed.

IMPORT successfully completed.

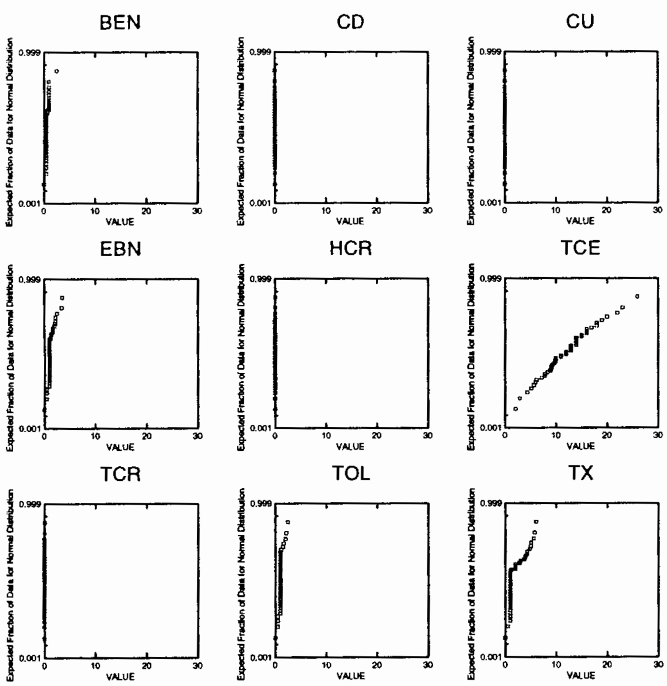
Data for the following results were selected according to:
(PARAM_ID$= "TCE")



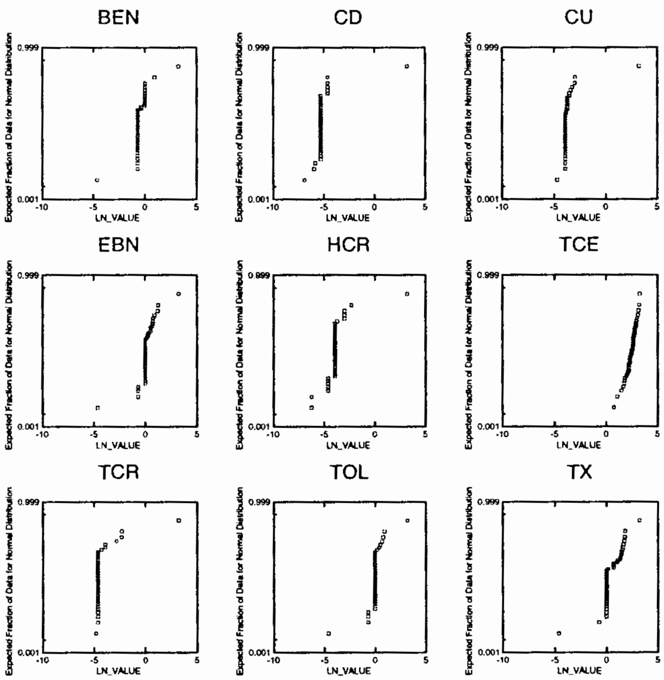
Data for the following results were selected according to:
(PARAM_ID$= "TCE")



Data for the following results were selected according to:
(WELL$= "MW-1S")



Data for the following results were selected according to:
(WELL$= "MW-1S")



F Z

Appendix F-3
Shapiro-Wilk Normality Tests

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-11	TCE	1	0				
MW-11	TCE	1	0				
MW-11	TCE	29	3.3673				
MW-11	TCE	33	3.4965				
MW-11	TCE	34	3.5264				
MW-11	TCE	35	3.5553				
MW-11	TCE	39	3.6636				
MW-11	TCE	46	3.8286				
MW-11	TCE	59	4.0775				
MW-11	TCE	61	4.1109				
MW-11	TCE	63	4.1431				
MW-11	TCE	65	4.1744				
MW-11	TCE	70	4.2485				
MW-11	TCE	80	4.382				
MW-11	TCE	85	4.4427				
MW-11	TCE	86	4.4543				
MW-11	TCE	110	4.7005				
MW-11	TCE	150	5.0106				
MW-11	TCE	160	5.0752				
MW-11	TCE	160	5.0752				
MW-11	TCE	180	5.193				
MW-11	TCE	190	5.247				
MW-11	TCE	230	5.4381				
MW-11	TCE	360	5.88				
MW-11	TCE	660	6.4922398				
MW-11	TCE	74	4.3040651				
MW-11	TCE	140	4.9416424				
MW-11	TCE	180	5.1929569				
MW-11	TCE	620	6.4297195				
MW-11	TCE	240	5.4806389				
MW-11	TCE	220	5.3936275				
MW-11	TCE	250	5.5214609				
MW-11	TCE	160	5.0751738				
MW-11	TCE	370	5.913503				
MW-11	TCE	240	5.4806389				
MW-11	TCE	350	5.8579332				
MW-11	TCE	390	5.9661467				
MW-11	TCE	180	5.1929569				
MW-11	TCE	150	5.0106353				
MW-11	TCE	430	3.2188758				
MW-11	TCE	690	6.5366916				
MW-11	TCE	480	6.1737861				
MW-11	TCE	740	6.6066502				
MW-11	TCE	650	6.4769724				
MW-11	TCE	820	6.7093043				
MW-11	TCE	1100	7.0030655				
MW-11	TCE	2900	7.972466				
MW-11	TCE	1700	7.4383835				

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Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-11	TCE	400	5.9914645				
MW-11	TCE	1500	7.3132204	6.09178E-10	no	0.001953	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-14S	TCE	15	2.7081				
MW-14S	TCE	18	2.8904				
MW-14S	TCE	21	3.0445				
MW-14S	TCE	25	3.2189				
MW-14S	TCE	25	3.2189				
MW-14S	TCE	29	3.3673				
MW-14S	TCE	44	3.7842				
MW-14S	TCE	55	4.0073				
MW-14S	TCE	56	4.0254				
MW-14S	TCE	56	4.0254				
MW-14S	TCE	58	4.06				
MW-14S	TCE	59	4.0775				
MW-14S	TCE	71	4.2627				
MW-14S	TCE	81	4.3944				
MW-14S	TCE	84	4.4308				
MW-14S	TCE	108	4.6821				
MW-14S	TCE	180	5.193				
MW-14S	TCE	20	2.9957323				
MW-14S	TCE	22	3.0910425				
MW-14S	TCE	35	3.5553481				
MW-14S	TCE	42	3.7376696				
MW-14S	TCE	51	3.9318256				
MW-14S	TCE	37	3.6109179				
MW-14S	TCE	61	4.1108739				
MW-14S	TCE	90	4.4998097				
MW-14S	TCE	45	3.8066625				
MW-14S	TCE	35	3.5553481				
MW-14S	TCE	57	4.0430513				
MW-14S	TCE	50	3.912023				
MW-14S	TCE	38	3.6375862				
MW-14S	TCE	18	2.8903718				
MW-14S	TCE	62	3.2188758				
MW-14S	TCE	98	4.5849675				
MW-14S	TCE	84	4.4308168				
MW-14S	TCE	74	4.3040651				
MW-14S	TCE	180	5.1929569				
MW-14S	TCE	230	5.4380793				
MW-14S	TCE	60	4.0943446				
MW-14S	TCE	170	5.1357984				
MW-14S	TCE	130	4.8675345				
MW-14S	TCE	35	3.5553481				
MW-14S	TCE	170	5.1357984	1.30583E-05	no	0.406639	yes

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-15S	TCE	1	0				
MW-15S	TCE	1.9	0.6419				
MW-15S	TCE	2.1	0.7419				
MW-15S	TCE	2.4	0.8755				
MW-15S	TCE	2.9	1.0647				
MW-15S	TCE	3.1	1.1314				
MW-15S	TCE	3.2	1.1632				
MW-15S	TCE	4.1	1.411				
MW-15S	TCE	4.6	1.5261				
MW-15S	TCE	6	1.79				
MW-15S	TCE	9	2.1972				
MW-15S	TCE	13	2.5649				
MW-15S	TCE	13	2.5649				
MW-15S	TCE	15	2.7081				
MW-15S	TCE	17	2.8332				
MW-15S	TCE	21	3.0445				
MW-15S	TCE	28	3.3322				
MW-15S	TCE	3.7	1.3083328				
MW-15S	TCE	2.8	1.0296194				
MW-15S	TCE	5.2	1.6486586				
MW-15S	TCE	3.9	1.3609766				
MW-15S	TCE	3.8	1.3350011				
MW-15S	TCE	2.8	1.0296194				
MW-15S	TCE	3.2	1.1631508				
MW-15S	TCE	5.3	1.6677068				
MW-15S	TCE	5.1	1.6292405				
MW-15S	TCE	3.3	1.1939225				
MW-15S	TCE	4.1	1.410987				
MW-15S	TCE	5.2	1.6486586				
MW-15S	TCE	5	1.6094379				
MW-15S	TCE	3.1	1.1314021				
MW-15S	TCE	3.4	1.2237754				
MW-15S	TCE	3.9	3.2188758				
MW-15S	TCE	7	1.9459101				
MW-15S	TCE	4.2	1.4350845				
MW-15S	TCE	3.9	1.3609766				
MW-15S	TCE	6.7	1.9021075				
MW-15S	TCE	25	3.2188758				
MW-15S	TCE	17	2.8332133				
MW-15S	TCE	6.7	1.9021075				
MW-15S	TCE	3	1.0986123				
MW-15S	TCE	5.1	1.6292405				
MW-15S	TCE	2.8	1.0296194	5.97867E-08	no	0.007697	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-16	TCE	15	2.7081				
MW-16	TCE	22	3.091				
MW-16	TCE	24	3.1781				
MW-16	TCE	35	3.5553				
MW-16	TCE	37	3.6109				
MW-16	TCE	42	3.7377				
MW-16	TCE	51	3.9318				
MW-16	TCE	52	3.9512				
MW-16	TCE	72	4.2767				
MW-16	TCE	76	4.3307				
MW-16	TCE	91	4.51				
MW-16	TCE	17	2.8332133				
MW-16	TCE	34	3.5263605				
MW-16	TCE	67	4.2046926				
MW-16	TCE	60	4.0943446				
MW-16	TCE	26	3.2580965				
MW-16	TCE	36	3.5835189				
MW-16	TCE	110	4.7004804				
MW-16	TCE	73	4.2904594				
MW-16	TCE	32	3.4657359				
MW-16	TCE	31	3.4339872				
MW-16	TCE	30	3.4011974				
MW-16	TCE	53	3.9702919				
MW-16	TCE	29	3.3672958				
MW-16	TCE	29	3.3672958				
MW-16	TCE	28	3.3322045				
MW-16	TCE	58	3.2188758				
MW-16	TCE	36	3.5835189				
MW-16	TCE	39	3.6635616				
MW-16	TCE	29	3.3672958				
MW-16	TCE	42	3.7376696				
MW-16	TCE	18	2.8903718				
MW-16	TCE	26	3.2580965				
MW-16	TCE	36	3.5835189				
MW-16	TCE	36	3.5835189				
MW-16	TCE	26	3.2580965				
MW-16	TCE	34	3.5263605	0.000408421	no	0.333614	yes

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-3	TCE	10	2.3026				
MW-3	TCE	12	2.4849				
MW-3	TCE	15	2.7081				
MW-3	TCE	16	2.7726				
MW-3	TCE	17	2.8332				
MW-3	TCE	25	3.2189				
MW-3	TCE	26	3.2581				
MW-3	TCE	27	3.2958				
MW-3	TCE	28	3.3322				
MW-3	TCE	38	3.6376				
MW-3	TCE	65	4.1744				
MW-3	TCE	71	4.2627				
MW-3	TCE	74	4.3041				
MW-3	TCE	74	4.3041				
MW-3	TCE	76	4.33				
MW-3	TCE	76	4.3307				
MW-3	TCE	76	4.3307				
MW-3	TCE	84	4.4308				
MW-3	TCE	100	4.6052				
MW-3	TCE	110	4.7005				
MW-3	TCE	120	4.7875				
MW-3	TCE	130	4.8675				
MW-3	TCE	130	4.8675				
MW-3	TCE	130	4.8675				
MW-3	TCE	72	4.2766661				
MW-3	TCE	57	4.0430513				
MW-3	TCE	9.5	2.2512918				
MW-3	TCE	30	3.4011974				
MW-3	TCE	26	3.2580965				
MW-3	TCE	46	3.8286414				
MW-3	TCE	17	2.8332133				
MW-3	TCE	21	3.0445224				
MW-3	TCE	28	3.3322045				
MW-3	TCE	13	2.5649494				
MW-3	TCE	13	2.5649494				
MW-3	TCE	24	3.1780538				
MW-3	TCE	25	3.2188758				
MW-3	TCE	18	2.8903718				
MW-3	TCE	25	3.2188758				
MW-3	TCE	24	3.2188758				
MW-3	TCE	26	3.2580965				
MW-3	TCE	21	3.0445224				
MW-3	TCE	43	3.7612001				
MW-3	TCE	170	5.1357984				
MW-3	TCE	170	5.1357984				
MW-3	TCE	170	5.1357984				
MW-3	TCE	2.5	0.9162907				
MW-3	TCE	150	5.0106353				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-3	TCE	41	3.7135721				
MW-3	TCE	290	5.6698809	1.2401E-06	no	0.194455	yes

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-4	TCE	25	3.2189				
MW-4	TCE	100	4.6052				
MW-4	TCE	120	4.7875				
MW-4	TCE	130	4.8675				
MW-4	TCE	170	5.1358				
MW-4	TCE	180	5.193				
MW-4	TCE	190	5.247				
MW-4	TCE	190	5.247				
MW-4	TCE	220	5.3936				
MW-4	TCE	230	5.4381				
MW-4	TCE	250	5.5215				
MW-4	TCE	250	5.5215				
MW-4	TCE	250	5.5215				
MW-4	TCE	250	5.5215				
MW-4	TCE	280	5.6348				
MW-4	TCE	280	5.6348				
MW-4	TCE	280	5.6348				
MW-4	TCE	280	5.6348				
MW-4	TCE	290	5.6699				
MW-4	TCE	290	5.6699				
MW-4	TCE	320	5.7683				
MW-4	TCE	340	5.8289				
MW-4	TCE	390	5.96				
MW-4	TCE	400	5.9915				
MW-4	TCE	190	5.2470241				
MW-4	TCE	67	4.2046926				
MW-4	TCE	90	4.4998097				
MW-4	TCE	150	5.0106353				
MW-4	TCE	160	5.0751738				
MW-4	TCE	130	4.8675345				
MW-4	TCE	140	4.9416424				
MW-4	TCE	310	5.7365723				
MW-4	TCE	330	5.7990927				
MW-4	TCE	150	5.0106353				
MW-4	TCE	150	5.0106353				
MW-4	TCE	230	5.4380793				
MW-4	TCE	180	5.1929569				
MW-4	TCE	92	4.5217886				
MW-4	TCE	120	4.7874917				
MW-4	TCE	120	3.2188758				
MW-4	TCE	260	5.5606816				
MW-4	TCE	190	5.2470241				
MW-4	TCE	140	4.9416424				
MW-4	TCE	210	5.3471075				
MW-4	TCE	160	5.0751738				
MW-4	TCE	240	5.4806389				
MW-4	TCE	170	5.1357984				
MW-4	TCE	150	5.0106353				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-4	TCE	75	4.3174881				
MW-4	TCE	220	5.3936275				
MW-4	TCE	170	5.1357984	0.716481685	yes	5.45E-05	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-6B	TCE	1.5	0.41				
MW-6B	TCE	2	0.6931				
MW-6B	TCE	2.6	0.9555				
MW-6B	TCE	2.7	0.9933				
MW-6B	TCE	2.7	0.9933				
MW-6B	TCE	2.9	1.0647				
MW-6B	TCE	5.9	1.775				
MW-6B	TCE	6.9	1.9315				
MW-6B	TCE	9.3	2.23				
MW-6B	TCE	10	2.3026				
MW-6B	TCE	19	2.9444				
MW-6B	TCE	29	3.3673				
MW-6B	TCE	29	3.3673				
MW-6B	TCE	37	3.6109				
MW-6B	TCE	46	3.8286				
MW-6B	TCE	51	3.9318				
MW-6B	TCE	52	3.9512				
MW-6B	TCE	57	4.0431				
MW-6B	TCE	59	4.0775				
MW-6B	TCE	61	4.1109				
MW-6B	TCE	8.6	2.1517622				
MW-6B	TCE	2.3	0.8329091				
MW-6B	TCE	8.8	2.1747517				
MW-6B	TCE	2.6	0.9555114				
MW-6B	TCE	14	2.6390573				
MW-6B	TCE	2.9	1.0647107				
MW-6B	TCE	2.3	0.8329091				
MW-6B	TCE	6.1	1.8082888				
MW-6B	TCE	5	1.6094379				
MW-6B	TCE	5.2	1.6486586				
MW-6B	TCE	6.6	1.8870696				
MW-6B	TCE	6.4	1.856298				
MW-6B	TCE	17	2.8332133				
MW-6B	TCE	7.7	2.0412203				
MW-6B	TCE	4.3	1.458615				
MW-6B	TCE	9.9	3.2188758				
MW-6B	TCE	17	2.8332133				
MW-6B	TCE	31	3.4339872				
MW-6B	TCE	8.2	2.1041342				
MW-6B	TCE	12	2.4849066				
MW-6B	TCE	13	2.5649494				
MW-6B	TCE	7	1.9459101				
MW-6B	TCE	9.2	2.2192035				
MW-6B	TCE	5.9	1.7749524				
MW-6B	TCE	3.7	1.3083328				
MW-6B	TCE	4.6	1.5260563	7.21155E-08	no	0.046791	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-7	TCE	1.8	0.5878				
MW-7	TCE	19	2.9444				
MW-7	TCE	23	3.1355				
MW-7	TCE	25	3.2189				
MW-7	TCE	30	3.4012				
MW-7	TCE	34	3.5264				
MW-7	TCE	35	3.5553				
MW-7	TCE	39	3.6636				
MW-7	TCE	43	3.7612				
MW-7	TCE	44	3.7842				
MW-7	TCE	44	3.7842				
MW-7	TCE	46	3.8286				
MW-7	TCE	47	3.8501				
MW-7	TCE	53	3.9703				
MW-7	TCE	53	3.9703				
MW-7	TCE	53	3.9703				
MW-7	TCE	54	3.989				
MW-7	TCE	55	4.0073				
MW-7	TCE	73	4.2905				
MW-7	TCE	96	4.5643				
MW-7	TCE	98	4.58				
MW-7	TCE	98	4.585				
MW-7	TCE	120	4.7875				
MW-7	TCE	140	4.9416				
MW-7	TCE	170	5.1357984				
MW-7	TCE	26	3.2580965				
MW-7	TCE	53	3.9702919				
MW-7	TCE	98	4.5849675				
MW-7	TCE	85	4.4426513				
MW-7	TCE	37	3.6109179				
MW-7	TCE	87	4.4659081				
MW-7	TCE	150	5.0106353				
MW-7	TCE	95	4.5538769				
MW-7	TCE	63	4.1431347				
MW-7	TCE	54	3.988984				
MW-7	TCE	85	4.4426513				
MW-7	TCE	97	4.574711				
MW-7	TCE	23	3.1354942				
MW-7	TCE	53	3.9702919				
MW-7	TCE	88	3.2188758				
MW-7	TCE	160	5.0751738				
MW-7	TCE	80	4.3820266				
MW-7	TCE	65	4.1743873				
MW-7	TCE	130	4.8675345				
MW-7	TCE	47	3.8501476				
MW-7	TCE	48	3.871201				
MW-7	TCE	110	4.7004804				
MW-7	TCE	78	4.3567088				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-7	TCE	84	4.4308168				
MW-7	TCE	160	5.0751738	0.007658742	no	2.62E-05	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-9	TCE	17	2.8332				
MW-9	TCE	24	3.1781				
MW-9	TCE	26	3.2581				
MW-9	TCE	26	3.2581				
MW-9	TCE	41	3.7136				
MW-9	TCE	45	3.8067				
MW-9	TCE	52	3.9512				
MW-9	TCE	55	4.0073				
MW-9	TCE	57	4.0431				
MW-9	TCE	64	4.1589				
MW-9	TCE	100	4.6052				
MW-9	TCE	100	4.6052				
MW-9	TCE	110	4.7005				
MW-9	TCE	110	4.7005				
MW-9	TCE	120	4.7875				
MW-9	TCE	150	5.0106				
MW-9	TCE	200	5.2983				
MW-9	TCE	230	5.4381				
MW-9	TCE	270	5.5984				
MW-9	TCE	350	5.85				
MW-9	TCE	390	5.9661				
MW-9	TCE	1000	6.9078				
MW-9	TCE	1000	6.9078				
MW-9	TCE	1100	7.0031				
MW-9	TCE	310	5.7365723				
MW-9	TCE	670	6.5072777				
MW-9	TCE	540	6.2915691				
MW-9	TCE	320	5.768321				
MW-9	TCE	500	6.2146081				
MW-9	TCE	580	6.3630281				
MW-9	TCE	570	6.3456364				
MW-9	TCE	470	6.1527327				
MW-9	TCE	400	5.9914645				
MW-9	TCE	770	6.6463905				
MW-9	TCE	850	6.7452363				
MW-9	TCE	600	6.3969297				
MW-9	TCE	270	5.598422				
MW-9	TCE	390	5.9661467				
MW-9	TCE	1300	7.1701195				
MW-9	TCE	1200	3.2188758				
MW-9	TCE	550	6.3099183				
MW-9	TCE	350	5.8579332				
MW-9	TCE	810	6.6970342				
MW-9	TCE	280	5.6347896				
MW-9	TCE	170	5.1357984				
MW-9	TCE	370	5.913503				
MW-9	TCE	160	5.0751738				
MW-9	TCE	200	5.2983174				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-9	TCE	120	4.7874917				
MW-9	TCE	440	6.0867747				
MW-9	TCE	340	5.8289456	9.82453E-05	no	0.021943	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	BEN	0.01	-4.6052				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.6931				
MW-1S	BEN	0.5	-0.69				
MW-1S	BEN	0.7	-0.3567				
MW-1S	BEN	0.7	-0.3567				
MW-1S	BEN	0.95	-0.0513				
MW-1S	BEN	1	0				
MW-1S	BEN	2.5	0.9163				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	0.5	3.2188758				
MW-1S	BEN	0.5	-0.693147				
MW-1S	BEN	1	0				
MW-1S	BEN	1	0				
MW-1S	BEN	1	0				
MW-1S	BEN	1	0				
MW-1S	BEN	1	0				
MW-1S	BEN	1	0				
MW-1S	BEN	1	0				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	BEN	1	0				
MW-1S	BEN	1	0	5.68028E-11	no	1.69E-11	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	CD	0.003	-5.9145				
MW-1S	CD	0.003	-5.8091				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.2983				
MW-1S	CD	0.005	-5.29				
MW-1S	CD	0.01	-4.6052				
MW-1S	CD	0.01	-4.6052				
MW-1S	CD	0.01	-4.6052				
MW-1S	CD	0.01	-4.6052				
MW-1S	CD	0.01	-4.6052				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.001	-6.907755				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	3.2188758				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	CD	0.005	-5.298317				
MW-1S	CD	0.005	-5.298317	1.6153E-11	no	2.52E-14	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	CU	0.009	-4.7105				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.912				
MW-1S	CU	0.02	-3.91				
MW-1S	CU	0.023	-3.7723				
MW-1S	CU	0.03	-3.5066				
MW-1S	CU	0.03	-3.5066				
MW-1S	CU	0.035	-3.3524				
MW-1S	CU	0.04	-3.2189				
MW-1S	CU	0.05	-2.9957				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.022	-3.816713				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.023	-3.772261				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.021	-3.863233				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.02	3.2188758				
MW-1S	CU	0.02	-3.912023				
MW-1S	CU	0.025	-3.688879				
MW-1S	CU	0.052	-2.956512				
MW-1S	CU	0.025	-3.688879				
MW-1S	CU	0.025	-3.688879				
MW-1S	CU	0.025	-3.688879				
MW-1S	CU	0.025	-3.688879				
MW-1S	CU	0.025	-3.688879				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	CU	0.025	-3.688879				
MW-1S	CU	0.025	-3.688879	2.55713E-10	no	3.43E-14	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	EBN	0.01	-4.6052				
MW-1S	EBN	0.5	-0.6931				
MW-1S	EBN	0.5	-0.6931				
MW-1S	EBN	0.5	-0.6931				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1.2	0.1823				
MW-1S	EBN	1.3	0.2624				
MW-1S	EBN	1.7	0.5306				
MW-1S	EBN	2.2	0.7885				
MW-1S	EBN	2.5	0.9163				
MW-1S	EBN	1	0				
MW-1S	EBN	1.3	0.2623643				
MW-1S	EBN	3.5	1.252763				
MW-1S	EBN	1.7	0.5306283				
MW-1S	EBN	1.7	0.5306283				
MW-1S	EBN	3.4	1.2237754				
MW-1S	EBN	2.2	0.7884574				
MW-1S	EBN	2.1	0.7419373				
MW-1S	EBN	1	0				
MW-1S	EBN	1.4	0.3364722				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	3.2188758				
MW-1S	EBN	2	0.6931472				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				
MW-1S	EBN	1	0				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	EBN	1	0				
MW-1S	EBN	1	0	1.38096E-08	no	1.36E-10	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	HCR	0.01	-4.6052				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.912				
MW-1S	HCR	0.02	-3.91				
MW-1S	HCR	0.05	-2.9957				
MW-1S	HCR	0.05	-2.9957				
MW-1S	HCR	0.05	-2.9957				
MW-1S	HCR	0.1	-2.3026				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.01	-4.60517				
MW-1S	HCR	0.01	-4.60517				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.02	3.2188758				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.025	-3.688879				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.01	-4.60517				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.01	-4.60517				
MW-1S	HCR	0.02	-3.912023				
MW-1S	HCR	0.002	-6.214608				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	HCR	0.002	-6.214608				
MW-1S	HCR	0.006	-5.083206	1.37078E-11	no	5.37E-12	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TCE	5.7	1.7405				
MW-1S	TCE	7.9	2.0669				
MW-1S	TCE	9.2	2.2192				
MW-1S	TCE	9.3	2.23				
MW-1S	TCE	9.9	2.2925				
MW-1S	TCE	10	2.3026				
MW-1S	TCE	11	2.3979				
MW-1S	TCE	11	2.3979				
MW-1S	TCE	12	2.4849				
MW-1S	TCE	13	2.56				
MW-1S	TCE	13	2.5649				
MW-1S	TCE	13	2.5649				
MW-1S	TCE	14	2.6391				
MW-1S	TCE	14	2.6391				
MW-1S	TCE	14	2.6391				
MW-1S	TCE	16	2.7726				
MW-1S	TCE	17	2.8332				
MW-1S	TCE	18	2.8904				
MW-1S	TCE	18	2.8904				
MW-1S	TCE	19	2.9444				
MW-1S	TCE	20	2.9957				
MW-1S	TCE	22	3.091				
MW-1S	TCE	23	3.1355				
MW-1S	TCE	26	3.2581				
MW-1S	TCE	5.2	1.6486586				
MW-1S	TCE	4.4	1.4816045				
MW-1S	TCE	6.2	1.8245493				
MW-1S	TCE	15	2.7080502				
MW-1S	TCE	8.4	2.1282317				
MW-1S	TCE	2.9	1.0647107				
MW-1S	TCE	9.7	2.2721259				
MW-1S	TCE	16	2.7725887				
MW-1S	TCE	6	1.7917595				
MW-1S	TCE	15	2.7080502				
MW-1S	TCE	14	2.6390573				
MW-1S	TCE	12	2.4849066				
MW-1S	TCE	12	2.4849066				
MW-1S	TCE	14	2.6390573				
MW-1S	TCE	14	2.6390573				
MW-1S	TCE	7.8	3.2188758				
MW-1S	TCE	10	2.3025851				
MW-1S	TCE	7.2	1.974081				
MW-1S	TCE	9.1	2.2082744				
MW-1S	TCE	9.1	2.2082744				
MW-1S	TCE	9.9	2.2925348				
MW-1S	TCE	16	2.7725887				
MW-1S	TCE	8.9	2.1860513				
MW-1S	TCE	13	2.5649494				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TCE	2.1	0.7419373				
MW-1S	TCE	13	2.5649494	0.640187443	yes	0.006246	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TCR	0.008	-4.8159				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-4.6052				
MW-1S	TCR	0.01	-2.3				
MW-1S	TCR	0.014	-4.2687				
MW-1S	TCR	0.02	-3.912				
MW-1S	TCR	0.02	-3.912				
MW-1S	TCR	0.06	-2.8134				
MW-1S	TCR	0.1	-2.3026				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	3.2188758				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TCR	0.01	-4.60517				
MW-1S	TCR	0.01	-4.60517	1.4755E-14	no	4.84E-14	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TOL	0.01	-4.6052				
MW-1S	TOL	0.5	-0.6931				
MW-1S	TOL	0.5	-0.6931				
MW-1S	TOL	0.5	-0.6931				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1.5	0.4055				
MW-1S	TOL	1.7	0.5306				
MW-1S	TOL	2.2	0.7885				
MW-1S	TOL	2.5	0.9163				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1.2	0.1823216				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	3.2188758				
MW-1S	TOL	2	0.6931472				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				
MW-1S	TOL	1	0				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TOL	1	0	2.65658E-10	no	3.27E-12	no

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TX	0.01	-4.6052				
MW-1S	TX	0.5	-0.6931				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	3	1.0986				
MW-1S	TX	4	1.3863				
MW-1S	TX	4.3	1.4586				
MW-1S	TX	4.3	1.4586				
MW-1S	TX	5	1.6094				
MW-1S	TX	5.6	1.7228				
MW-1S	TX	5.8	1.75				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	6.1	1.8082888				
MW-1S	TX	3.9	1.3609766				
MW-1S	TX	5.1	1.6292405				
MW-1S	TX	4.9	1.5892352				
MW-1S	TX	3.7	1.3083328				
MW-1S	TX	2.8	1.0296194				
MW-1S	TX	2	0.6931472				
MW-1S	TX	1.2	0.1823216				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	3.2188758				
MW-1S	TX	2	0.6931472				
MW-1S	TX	2	0.6931472				
MW-1S	TX	1	0				
MW-1S	TX	2	0.6931472				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				
MW-1S	TX	1	0				

Well	Param_id	Value	Ln_value	Normal Data p value	Normal?	Log Data p value	Log Normal?
MW-1S	TX	1	0				
MW-1S	TX	1	0	1.42533E-08	no	1.5E-08	no

Appendix F-4
Test of Variance Box Plots

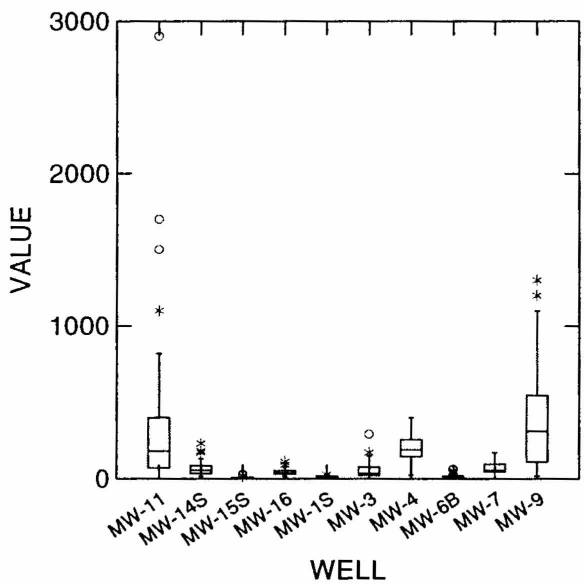
IMPORT successfully completed.

IMPORT successfully completed.

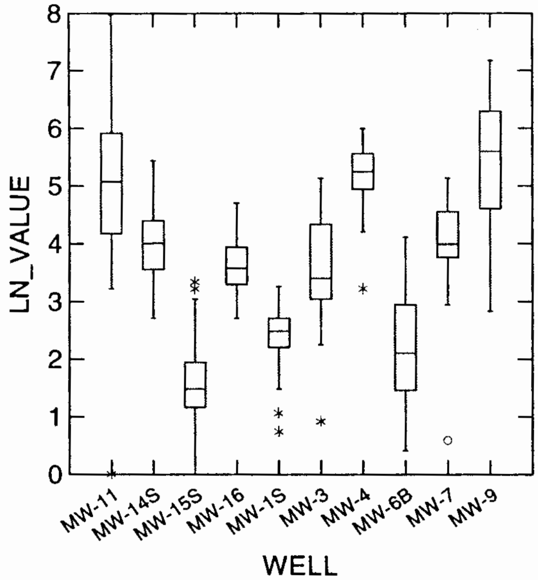
Data for the following results were selected according to:
(PARAM_ID$= "TCE")

Data for the following results were selected according to:
(PARAM_ID$= "TCE")

Data for the following results were selected according to:
(PARAM_ID$= "TCE")



Data for the following results were selected according to:
(PARAM_ID$= "TCE")


LN_VALUE
8
7
6
5
4
3
2
1
0
MW-11
MW-14S
MW-15S
MW-16
MW-1S
MW-3
MW-4
MW-6B
MW-7
MW-9
WELL

Appendix F-5
Parametric ANOVA Results

CDM

IMPORT successfully completed.

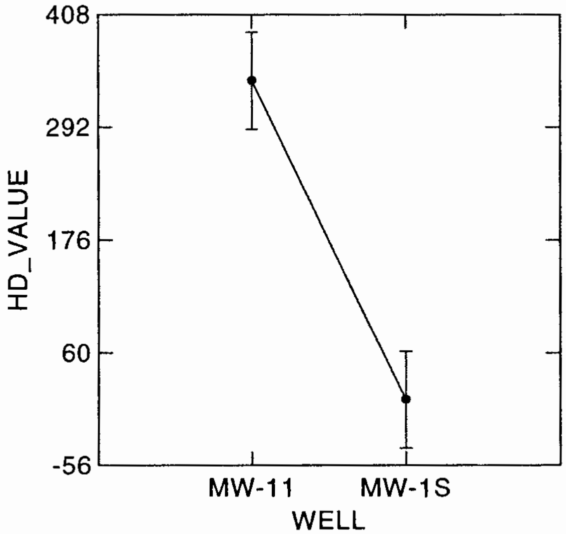
898 cases and 6 variables processed and saved.

SYSTAT Rectangular file C:\CDM\Oct01\1-11.SYD,
created Mon Dec 17, 2001 at 22:19:18, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-11, MW-1S

Dep Var: HD_VALUE   N: 100   Multiple R: 0.425   Squared multiple R: 0.180


                             Analysis of Variance

Source              Sum-of-Squares   df  Mean-Square     F-ratio       P

WELL$                 2691584.766     1  2691584.766      21.541       0.000

Error                 1.22450E+07    98   124949.371
-------------------------------------------------------------------------------
```

Least Squares Means




```
*** WARNING ***
Case          837 is an outlier        (Studentized Residual =        10.804)
Case          855 is an outlier        (Studentized Residual =         4.204)
Case          893 is an outlier        (Studentized Residual =         3.500)

Durbin-Watson D Statistic      1.756
First Order Autocorrelation    0.117
COL/
ROW WELL$
  1  MW-11
  2  MW-1S
Using least squares means.
Post Hoc test of HD_VALUE
-------------------------------------------------------------------------------

Using model MSE of 124949.371 with 98 df.
Matrix of pairwise mean differences:

                         1           2
              1          0.000
              2       -328.121       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                         1           2
              1          1.000
              2          0.000       1.000
-------------------------------------------------------------------------------



Data for the following results were selected according to:
```

(PARAM_ID$= "TCE")

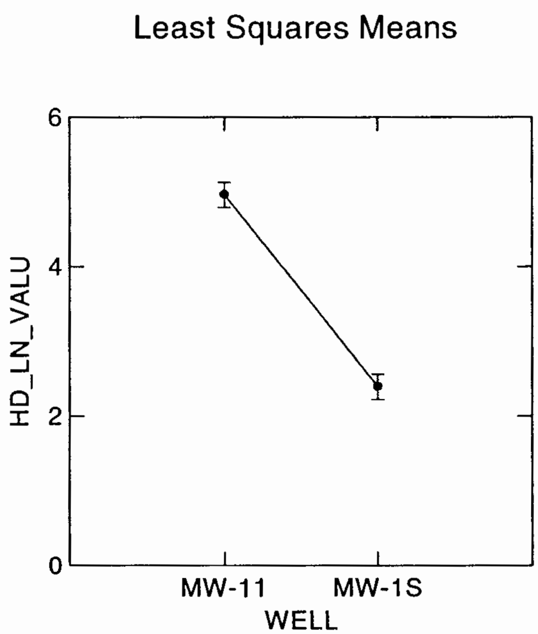
Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Dep Var: HD_LN_VALU N: 100 Multiple R: 0.736 Squared multiple R: 0.542

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	165.191	1	165.191	115.826	0.000
Error	139.768	98	1.426		



*** WARNING ***
Case 121 is an outlier (Studentized Residual = -5.434)
Case 122 is an outlier (Studentized Residual = -5.434)

Durbin-Watson D Statistic 1.124
First Order Autocorrelation 0.323
COL/
ROW WELL$
1 MW-11
2 MW-1S
Using least squares means.
Post Hoc test of HD_LN_VALU

```
Using model MSE of 1.426 with 98 df.
Matrix of pairwise mean differences:

                      1           2
          1         0.000
          2        -2.571       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                      1           2
          1         1.000
          2         0.000       1.000
```

IMPORT successfully completed.

826 cases and 6 variables processed and saved.

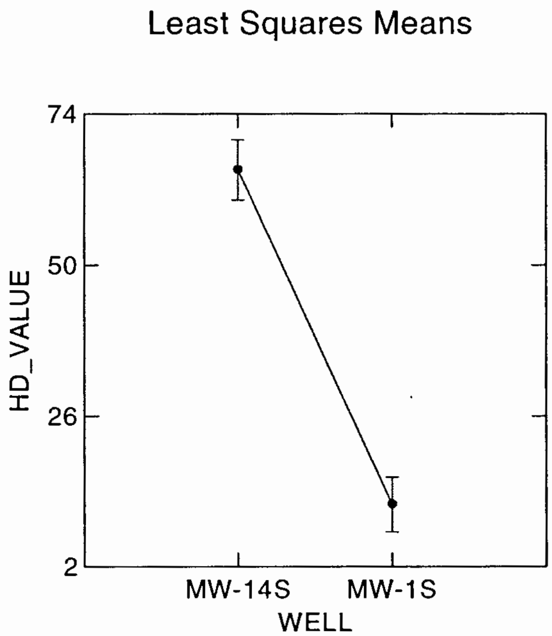
SYSTAT Rectangular file C:\CDM\Oct01\1-14s.SYD,
created Mon Dec 17, 2001 at 22:19:24, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-14S, MW-1S

Dep Var: HD_VALUE    N: 92    Multiple R: 0.655    Squared multiple R: 0.429
```

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	64642.748	1	64642.748	67.596	0.000
Error	86068.449	90	956.316		




```
*** WARNING ***
Case          102 is an outlier        (Studentized Residual =        4.073)
Case          711 is an outlier        (Studentized Residual =        4.073)
Case          765 is an outlier        (Studentized Residual =        3.663)
Case          822 is an outlier        (Studentized Residual =        3.663)

Durbin-Watson D Statistic      1.477
First Order Autocorrelation    0.183
COL/
ROW WELL$
  1   MW-14S
  2   MW-1S
Using least squares means.
Post Hoc test of HD_VALUE
------------------------------------------------------------------------------

Using model MSE of 956.316 with 90 df.
Matrix of pairwise mean differences:

                         1           2
              1          0.000
              2        -53.216       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                         1           2
              1          1.000
              2          0.000       1.000
------------------------------------------------------------------------------
```

Data for the following results were selected according to:
(PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

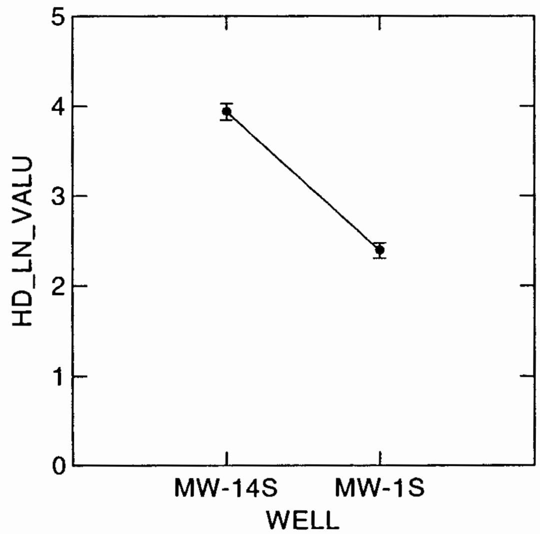
Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Dep Var: HD_LN_VALU N: 92 Multiple R: 0.794 Squared multiple R: 0.631

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	54.619	1	54.619	153.769	0.000
Error	31.968	90	0.355		

Least Squares Means



Durbin-Watson D Statistic 1.438
First Order Autocorrelation 0.235
COL/
ROW WELL$
1 MW-14S
2 MW-1S
Using least squares means.
Post Hoc test of HD_LN_VALU

```
Using model MSE of 0.355 with 90 df.
Matrix of pairwise mean differences:

                      1           2
            1         0.000
            2        -1.547       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                      1           2
            1         1.000
            2         0.000       1.000
--------------------------------------------------------------------------------
```

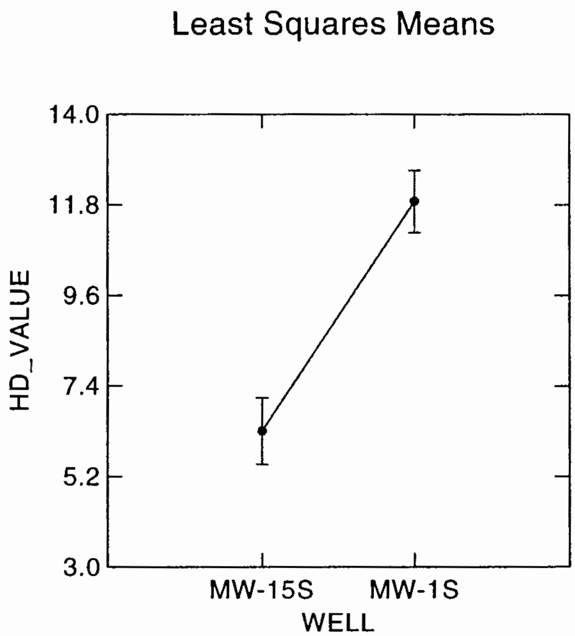
IMPORT successfully completed.

835 cases and 6 variables processed and saved.

SYSTAT Rectangular file C:\CDM\Oct01\1-15s.SYD,
created Mon Dec 17, 2001 at 22:19:30, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-15S, MW-1S

Dep Var: HD_VALUE   N: 93   Multiple R: 0.467   Squared multiple R: 0.218

                              Analysis of Variance

Source              Sum-of-Squares   df  Mean-Square     F-ratio       P

WELL$                      718.962    1      718.962      25.431      0.000

Error                     2572.660   91       28.271
--------------------------------------------------------------------------------
```




```
*** WARNING ***
Case          102 is an outlier        (Studentized Residual =        4.555)

Durbin-Watson D Statistic     1.003
First Order Autocorrelation   0.490
COL/
ROW WELL$
  1  MW-15S
  2  MW-1S
Using least squares means.
Post Hoc test of HD_VALUE
--------------------------------------------------------------------------------

Using model MSE of 28.271 with 91 df.
Matrix of pairwise mean differences:

                         1            2
              1          0.000
              2          5.577        0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                         1            2
              1          1.000
              2          0.000        1.000
--------------------------------------------------------------------------------
```

Data for the following results were selected according to:
(PARAM_ID$= "TCE")

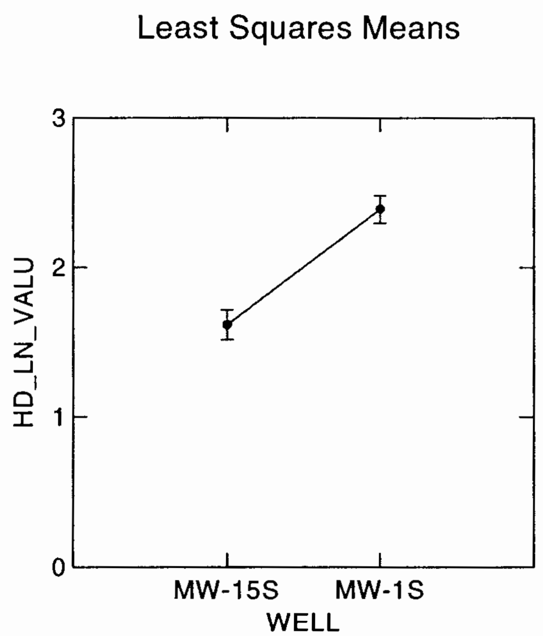
Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Dep Var: HD_LN_VALU N: 93 Multiple R: 0.518 Squared multiple R: 0.269

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	13.852	1	13.852	33.402	0.000
Error	37.738	91	0.415		



*** WARNING ***
Case 86 is an outlier (Studentized Residual = -3.901)

Durbin-Watson D Statistic 0.961
First Order Autocorrelation 0.444
COL/
ROW WELL$
1 MW-15S
2 MW-1S
Using least squares means.
Post Hoc test of HD_LN_VALU

Using model MSE of 0.415 with 91 df.

```
Matrix of pairwise mean differences:

                        1           2
              1         0.000
              2         0.774       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                        1           2
              1         1.000
              2         0.000       1.000
------------------------------------------------------------------------------
```

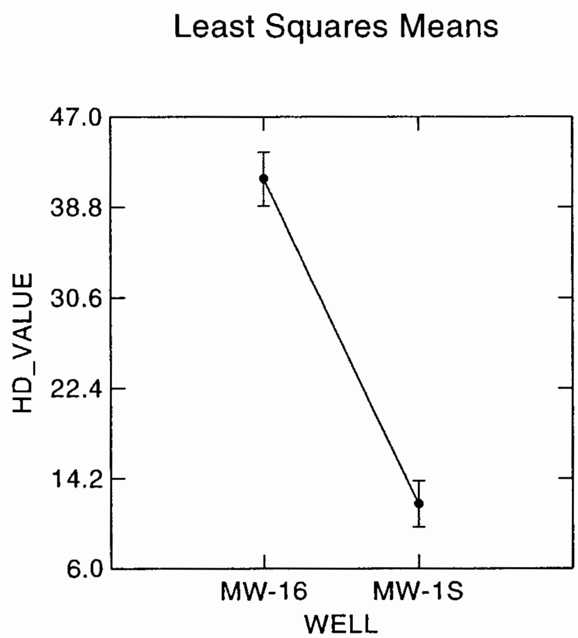
IMPORT successfully completed.

781 cases and 6 variables processed and saved.

SYSTAT Rectangular file C:\CDM\Oct01\1-16.SYD,
created Mon Dec 17, 2001 at 22:19:36, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-16, MW-1S

Dep Var: HD_VALUE   N: 87   Multiple R: 0.704   Squared multiple R: 0.496


                             Analysis of Variance

Source             Sum-of-Squares   df  Mean-Square     F-ratio       P

WELL$                   18470.644    1    18470.644      83.630       0.000

Error                   18773.263   85      220.862

------------------------------------------------------------------------------
```

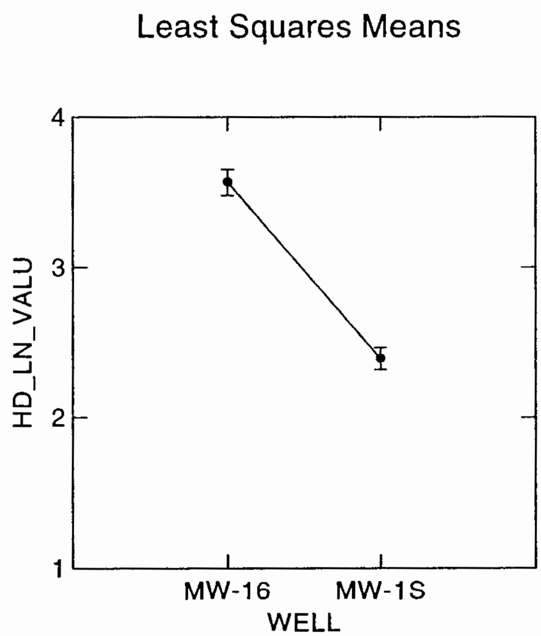



```
*** WARNING ***
Case            66 is an outlier        (Studentized Residual =        3.620)
Case           439 is an outlier        (Studentized Residual =        5.404)

Durbin-Watson D Statistic      1.366
First Order Autocorrelation    0.298
COL/
ROW WELL$
  1  MW-16
  2  MW-1S
Using least squares means.
Post Hoc test of HD_VALUE
-------------------------------------------------------------------------------

Using model MSE of 220.862 with 85 df.
Matrix of pairwise mean differences:

                         1           2
              1          0.000
              2        -29.472       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                         1           2
              1          1.000
              2          0.000       1.000
-------------------------------------------------------------------------------


Data for the following results were selected according to:
      (PARAM_ID$= "TCE")
```

```
Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-16, MW-1S

Dep Var: HD_LN_VALU   N: 87   Multiple R: 0.748   Squared multiple R: 0.560
```

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	29.489	1	29.489	108.105	0.000
Error	23.187	85	0.273		




```
*** WARNING ***
Case          757 is an outlier        (Studentized Residual =       -3.377)

Durbin-Watson D Statistic     1.196
First Order Autocorrelation   0.385
COL/
ROW WELL$
  1  MW-16
  2  MW-1S
Using least squares means.
Post Hoc test of HD_LN_VALU
```

```
Using model MSE of 0.273 with 85 df.
Matrix of pairwise mean differences:

                        1           2
              1         0.000
              2        -1.178       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                        1           2
              1         1.000
              2         0.000       1.000
```

IMPORT successfully completed.

898 cases and 6 variables processed and saved.

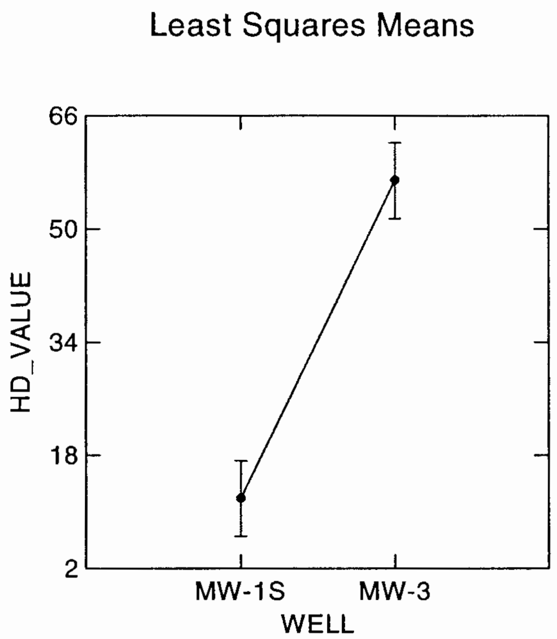
SYSTAT Rectangular file C:\CDM\Oct01\1-3.SYD,
created Mon Dec 17, 2001 at 22:19:42, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-1S, MW-3

Dep Var: HD_VALUE   N: 100   Multiple R: 0.514   Squared multiple R: 0.264
```

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	50481.102	1	50481.102	35.120	0.000
Error	140865.432	98	1437.402		

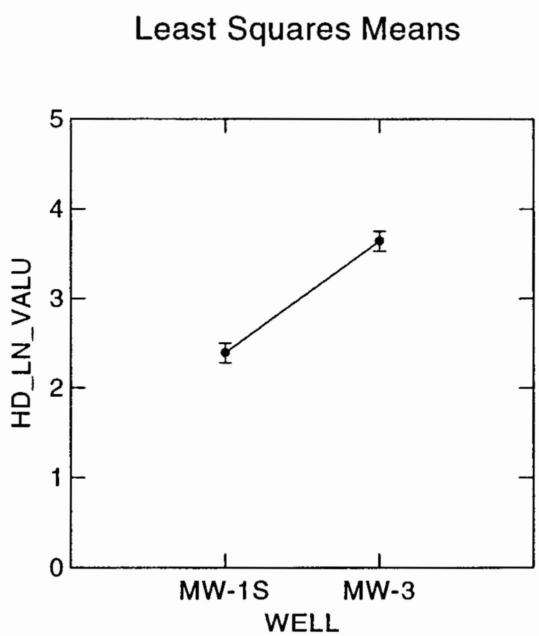



```
*** WARNING ***
Case          893 is an outlier        (Studentized Residual =        7.940)

Durbin-Watson D Statistic     1.620
First Order Autocorrelation   0.190
COL/
ROW WELL$
  1  MW-1S
  2  MW-3
Using least squares means.
Post Hoc test of HD_VALUE
-------------------------------------------------------------------------------

Using model MSE of 1437.402 with 98 df.
Matrix of pairwise mean differences:

                        1            2
              1         0.000
              2        44.936        0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                        1            2
              1         1.000
              2         0.000        1.000
-------------------------------------------------------------------------------


Data for the following results were selected according to:
      (PARAM_ID$= "TCE")
```

```
Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-1S, MW-3

Dep Var: HD_LN_VALU   N: 100   Multiple R: 0.632   Squared multiple R: 0.400
```

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	39.249	1	39.249	65.332	0.000
Error	58.875	98	0.601		




```
*** WARNING ***
Case          838 is an outlier        (Studentized Residual =       -4.966)

Durbin-Watson D Statistic     1.705
First Order Autocorrelation   0.144
COL/
ROW WELL$
  1  MW-1S
  2  MW-3
Using least squares means.
Post Hoc test of HD_LN_VALU
-------------------------------------------------------------------------------

Using model MSE of 0.601 with 98 df.
```

```
Matrix of pairwise mean differences:

                        1           2
             1          0.000
             2          1.253       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                        1           2
             1          1.000
             2          0.000       1.000
-------------------------------------------------------------------------------
```

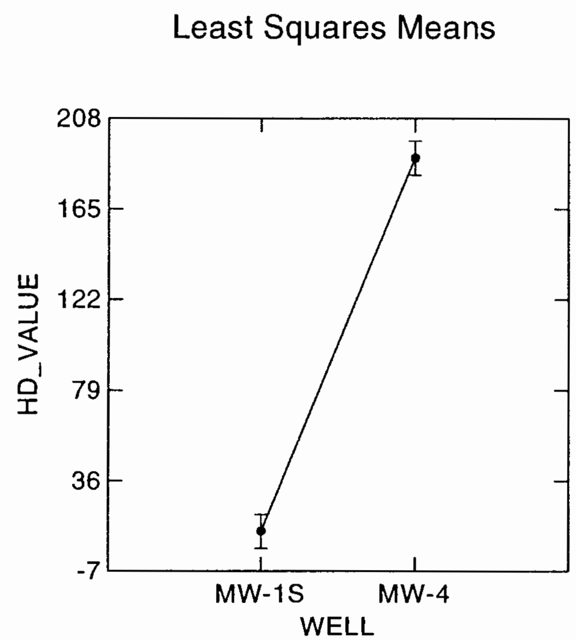
IMPORT successfully completed.

907 cases and 6 variables processed and saved.

SYSTAT Rectangular file C:\CDM\Oct01\1-4.SYD,
created Mon Dec 17, 2001 at 22:19:50, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-1S, MW-4

Dep Var: HD_VALUE   N: 101   Multiple R: 0.841   Squared multiple R: 0.707

                             Analysis of Variance

Source              Sum-of-Squares   df  Mean-Square     F-ratio       P

WELL$                  793816.169     1   793816.169     238.871       0.000

Error                  328996.870    99     3323.201

-------------------------------------------------------------------------------
```




```
*** WARNING ***
Case          358 is an outlier        (Studentized Residual =        3.742)

Durbin-Watson D Statistic     1.133
First Order Autocorrelation   0.433
COL/
ROW WELL$
  1  MW-1S
  2  MW-4
Using least squares means.
Post Hoc test of HD_VALUE
------------------------------------------------------------------------------

Using model MSE of 3323.201 with 99 df.
Matrix of pairwise mean differences:

                        1           2
              1       0.000
              2     177.317       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                        1           2
              1       1.000
              2       0.000       1.000
------------------------------------------------------------------------------


Data for the following results were selected according to:
      (PARAM_ID$= "TCE")
```

Effects coding used for categorical variables in model.

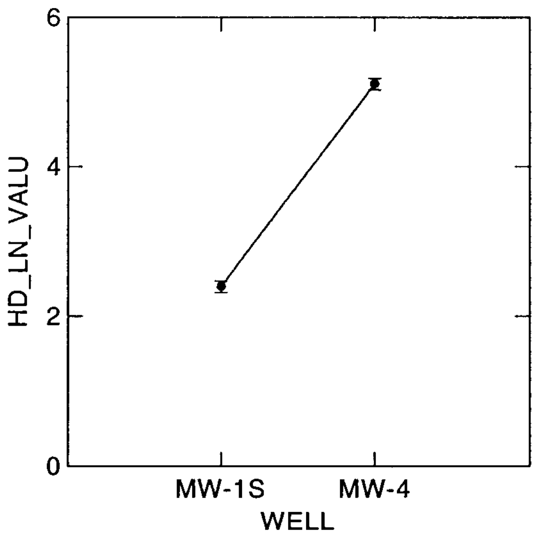
Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Dep Var: HD_LN_VALU N: 101 Multiple R: 0.930 Squared multiple R: 0.864

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	186.237	1	186.237	629.483	0.000
Error	29.290	99	0.296		

Least Squares Means



*** WARNING ***
Case 336 is an outlier (Studentized Residual = -3.724)
Case 712 is an outlier (Studentized Residual = -3.724)

Durbin-Watson D Statistic 1.482
First Order Autocorrelation 0.251
COL/
ROW WELL$
1 MW-1S
2 MW-4
Using least squares means.
Post Hoc test of HD_LN_VALU

```
Using model MSE of 0.296 with 99 df.
Matrix of pairwise mean differences:

                    1          2
          1         0.000
          2         2.716      0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                    1          2
          1         1.000
          2         0.000      1.000
--------------------------------------------------------------------------------
```

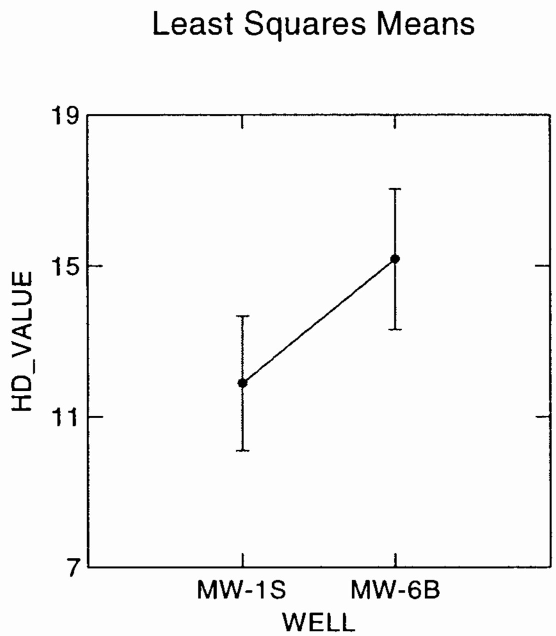
IMPORT successfully completed.

862 cases and 6 variables processed and saved.

SYSTAT Rectangular file C:\CDM\Oct01\1-6B.SYD,
created Mon Dec 17, 2001 at 22:19:56, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-1S, MW-6B

Dep Var: HD_VALUE   N: 96   Multiple R: 0.130   Squared multiple R: 0.017


                           Analysis of Variance

Source              Sum-of-Squares   df  Mean-Square     F-ratio       P

WELL$                     259.417     1      259.417       1.628       0.205

Error                   14982.168    94      159.385
--------------------------------------------------------------------------------
```




```
*** WARNING ***
Case           333 is an outlier        (Studentized Residual =        3.551)
Case           334 is an outlier        (Studentized Residual =        3.746)
Case           335 is an outlier        (Studentized Residual =        3.944)

Durbin-Watson D Statistic      0.534
First Order Autocorrelation    0.728
COL/
ROW WELL$
  1  MW-1S
  2  MW-6B
Using least squares means.
Post Hoc test of HD_VALUE
-------------------------------------------------------------------------------

Using model MSE of 159.385 with 94 df.
Matrix of pairwise mean differences:

                         1           2
              1        0.000
              2        3.291       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                         1           2
              1        1.000
              2        0.205       1.000
-------------------------------------------------------------------------------



Data for the following results were selected according to:
```

(PARAM_ID$= "TCE")

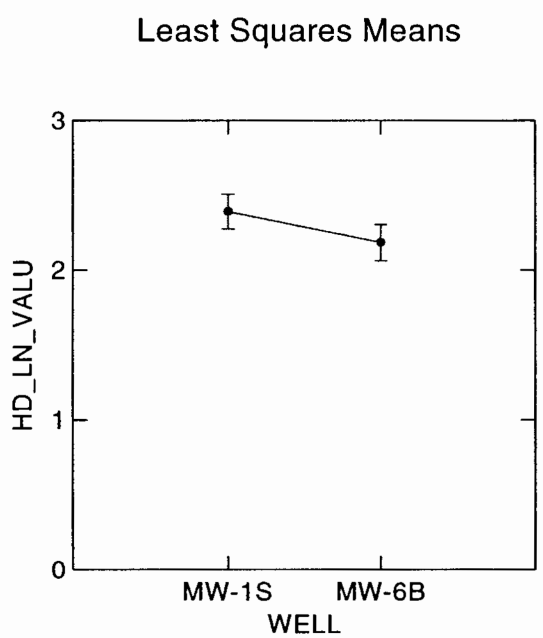
Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Dep Var: HD_LN_VALU N: 96 Multiple R: 0.126 Squared multiple R: 0.016

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	1.029	1	1.029	1.525	0.220
Error	63.432	94	0.675		



Durbin-Watson D Statistic 0.841
First Order Autocorrelation 0.573
COL/
ROW WELL$
1 MW-1S
2 MW-6B
Using least squares means.
Post Hoc test of HD_LN_VALU

Using model MSE of 0.675 with 94 df.

```
Matrix of pairwise mean differences:

                      1            2
           1        0.000
           2       -0.207        0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                      1            2
           1        1.000
           2        0.220        1.000
--------------------------------------------------------------------------------
```

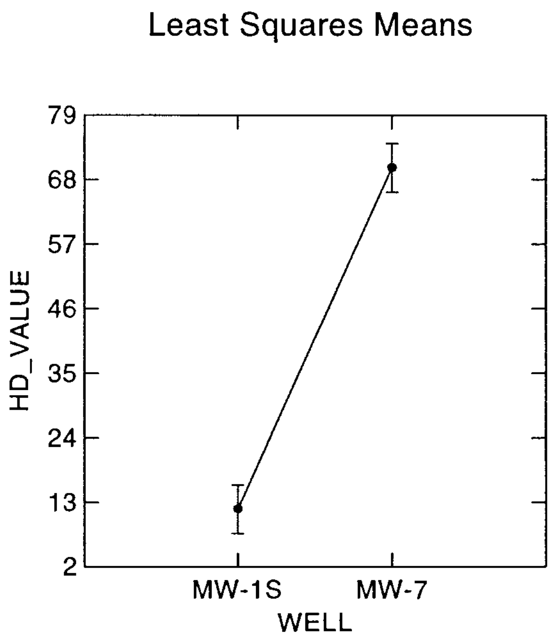
IMPORT successfully completed.

898 cases and 6 variables processed and saved.

SYSTAT Rectangular file C:\CDM\Oct01\1-7.SYD,
created Mon Dec 17, 2001 at 22:20:04, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

```
Data for the following results were selected according to:
      (PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
   MW-1S, MW-7

Dep Var: HD_VALUE   N: 100   Multiple R: 0.709   Squared multiple R: 0.502


                             Analysis of Variance

Source               Sum-of-Squares   df  Mean-Square     F-ratio       P

WELL$                    84584.997     1    84584.997      98.879      0.000

Error                    83833.215    98      855.441

--------------------------------------------------------------------------------
```




```
*** WARNING ***
Case          448 is an outlier        (Studentized Residual =        3.665)

Durbin-Watson D Statistic     1.434
First Order Autocorrelation   0.283
COL/
ROW WELL$
  1  MW-1S
  2  MW-7
Using least squares means.
Post Hoc test of HD_VALUE
-------------------------------------------------------------------------------

Using model MSE of 855.441 with 98 df.
Matrix of pairwise mean differences:

                        1            2
              1         0.000
              2        58.167        0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                        1            2
              1         1.000
              2         0.000        1.000
-------------------------------------------------------------------------------
```

Data for the following results were selected according to:
(PARAM_ID$= "TCE")

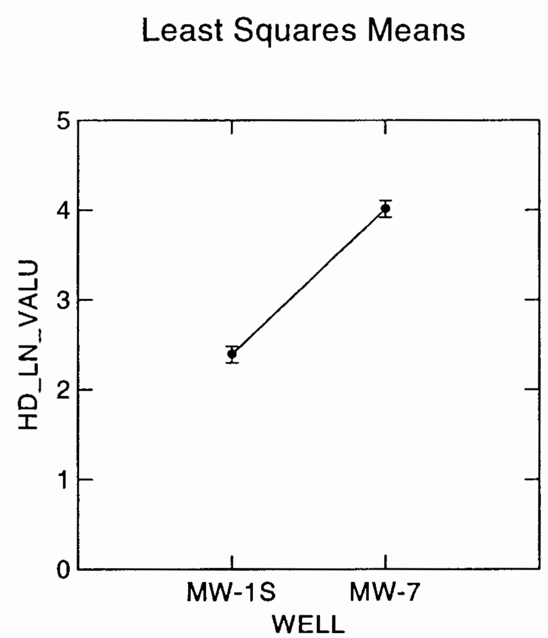
Effects coding used for categorical variables in model.

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-7

Dep Var: HD_LN_VALU N: 100 Multiple R: 0.780 Squared multiple R: 0.608

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	65.797	1	65.797	152.314	0.000
Error	42.334	98	0.432		



*** WARNING ***
Case 336 is an outlier (Studentized Residual = -6.182)

Durbin-Watson D Statistic 1.711
First Order Autocorrelation 0.139
COL/
ROW WELL$
1 MW-1S
2 MW-7
Using least squares means.
Post Hoc test of HD_LN_VALU

Using model MSE of 0.432 with 98 df.

Matrix of pairwise mean differences:

	1	2
1	0.000	
2	1.622	0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

	1	2
1	1.000	
2	0.000	1.000

IMPORT successfully completed.

907 cases and 6 variables processed and saved.

SYSTAT Rectangular file C:\CDM\Oct01\1-9.SYD,
created Mon Dec 17, 2001 at 22:20:12, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

Data for the following results were selected according to:
(PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

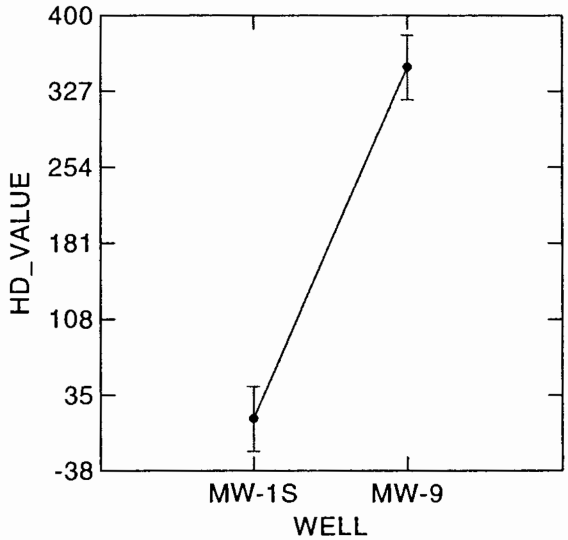
Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-9

Dep Var: HD_VALUE N: 101 Multiple R: 0.611 Squared multiple R: 0.373

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	2885439.502	1	2885439.502	58.891	0.000
Error	4850643.654	99	48996.401		

Least Squares Means




```
*** WARNING ***
Case          359 is an outlier        (Studentized Residual =        3.626)
Case          694 is an outlier        (Studentized Residual =        4.791)
Case          712 is an outlier        (Studentized Residual =        4.190)

Durbin-Watson D Statistic     1.422
First Order Autocorrelation   0.289
COL/
ROW WELL$
  1  MW-1S
  2  MW-9
Using least squares means.
Post Hoc test of HD_VALUE
------------------------------------------------------------------------------

Using model MSE of 48996.401 with 99 df.
Matrix of pairwise mean differences:

                        1           2
              1       0.000
              2     338.062       0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

                        1           2
              1       1.000
              2       0.000       1.000
------------------------------------------------------------------------------



Data for the following results were selected according to:
```

(PARAM_ID$= "TCE")

Effects coding used for categorical variables in model.

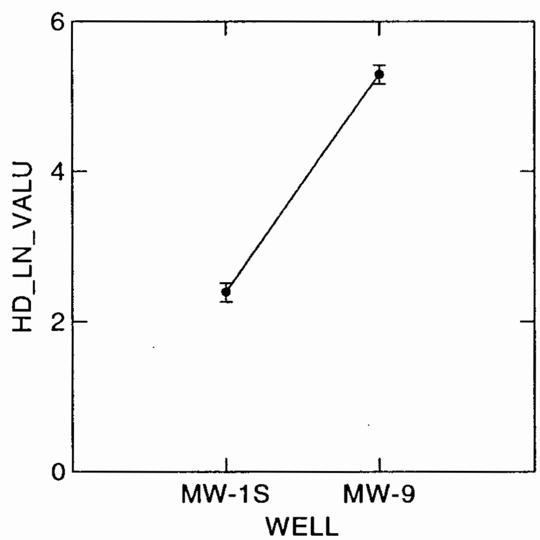
Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-9

Dep Var: HD_LN_VALU N: 101 Multiple R: 0.855 Squared multiple R: 0.732

Analysis of Variance

Source	Sum-of-Squares	df	Mean-Square	F-ratio	P
WELL$	212.581	1	212.581	269.798	0.000
Error	78.005	99	0.788		

Least Squares Means



Durbin-Watson D Statistic 1.221
First Order Autocorrelation 0.386
COL/
ROW WELL$
1 MW-1S
2 MW-9
Using least squares means.
Post Hoc test of HD_LN_VALU

Using model MSE of 0.788 with 99 df.

Matrix of pairwise mean differences:

	1	2
1	0.000	
2	2.902	0.000

Tukey HSD Multiple Comparisons.
Matrix of pairwise comparison probabilities:

	1	2
1	1.000	
2	0.000	1.000

Appendix F-6
Nonparametric Kruskal-Wallis/ Mann-Whitney U Test Results

IMPORT successfully completed.

SYSTAT Rectangular file C:\CDM\Oct01\1-11.syd,
created Mon Dec 17, 2001 at 22:19:18, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

The following results are for:
PARAM_ID$ = BEN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	3029.500
MW-1S	50	2020.500

Mann-Whitney U test statistic = 1754.500
Probability is 0.000
Chi-square approximation = 13.741 with 1 df

The following results are for:
PARAM_ID$ = CD

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	2478.000
MW-1S	50	2572.000

Mann-Whitney U test statistic = 1203.000
Probability is 0.628
Chi-square approximation = 0.235 with 1 df

The following results are for:
PARAM_ID$ = CU

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum

MW-11 50 2588.000
MW-1S 50 2462.000
Mann-Whitney U test statistic = 1313.000
Probability is 0.629
Chi-square approximation = 0.233 with 1 df

The following results are for:
PARAM_ID$ = EBN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	3693.500
MW-1S	50	1356.500

Mann-Whitney U test statistic = 2418.500
Probability is 0.000
Chi-square approximation = 67.549 with 1 df

The following results are for:
PARAM_ID$ = HCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	2506.000
MW-1S	50	2544.000

Mann-Whitney U test statistic = 1231.000
Probability is 0.863
Chi-square approximation = 0.030 with 1 df

The following results are for:
PARAM_ID$ = TCE

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	3675.000
MW-1S	50	1375.000

Mann-Whitney U test statistic = 2400.000
Probability is 0.000
Chi-square approximation = 62.882 with 1 df

The following results are for:
PARAM_ID$ = TCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	2543.000
MW-1S	50	2507.000

Mann-Whitney U test statistic = 1268.000
Probability is 0.856
Chi-square approximation = 0.033 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 98 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	49	3322.500
MW-1S	49	1528.500

Mann-Whitney U test statistic = 2097.500
Probability is 0.000
Chi-square approximation = 44.998 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	3462.000
MW-1S	50	1588.000

Mann-Whitney U test statistic = 2187.000
Probability is 0.000
Chi-square approximation = 43.288 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-14s.syd,
created Mon Dec 17, 2001 at 22:19:24, contains variables:

WELL$ PARAM_ID$ VALUE LN_VALUE HD_VALUE HD_LN_VALU

The following results are for:

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	2543.000
MW-1S	50	2507.000

Mann-Whitney U test statistic = 1268.000
Probability is 0.856
Chi-square approximation = 0.033 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 98 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	49	3322.500
MW-1S	49	1528.500

Mann-Whitney U test statistic = 2097.500
Probability is 0.000
Chi-square approximation = 44.998 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-11, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-11	50	3462.000
MW-1S	50	1588.000

Mann-Whitney U test statistic = 2187.000
Probability is 0.000
Chi-square approximation = 43.288 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-14s.syd,
created Mon Dec 17, 2001 at 22:19:24, contains variables:

WELL$ PARAM_ID$ VALUE LN_VALUE HD_VALUE HD_LN_VALU

The following results are for:

Chi-square approximation = 48.473 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 90 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	41	2266.500
MW-1S	49	1828.500

Mann-Whitney U test statistic = 1405.500
Probability is 0.000
Chi-square approximation = 15.005 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 92 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	42	2381.000
MW-1S	50	1897.000

Mann-Whitney U test statistic = 1478.000
Probability is 0.000
Chi-square approximation = 12.546 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-15s.syd,
created Mon Dec 17, 2001 at 22:19:30, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

The following results are for:
PARAM_ID$ = BEN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	2058.000
MW-1S	50	2313.000

Mann-Whitney U test statistic = 1112.000

Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	42	2686.000
MW-1S	50	1592.000

Mann-Whitney U test statistic = 1783.000
Probability is 0.000
Chi-square approximation = 35.977 with 1 df

The following results are for:
PARAM_ID$ = HCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 92 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	42	2360.500
MW-1S	50	1917.500

Mann-Whitney U test statistic = 1457.500
Probability is 0.000
Chi-square approximation = 12.626 with 1 df

The following results are for:
PARAM_ID$ = TCE

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 92 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	42	2968.000
MW-1S	50	1310.000

Mann-Whitney U test statistic = 2065.000
Probability is 0.000
Chi-square approximation = 63.346 with 1 df

The following results are for:
PARAM_ID$ = TCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 92 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	42	2762.000
MW-1S	50	1516.000

Mann-Whitney U test statistic = 1859.000
Probability is 0.000

Chi-square approximation = 48.473 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 90 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	41	2266.500
MW-1S	49	1828.500

Mann-Whitney U test statistic = 1405.500
Probability is 0.000
Chi-square approximation = 15.005 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-14S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 92 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-14S	42	2381.000
MW-1S	50	1897.000

Mann-Whitney U test statistic = 1478.000
Probability is 0.000
Chi-square approximation = 12.546 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-15s.syd,
created Mon Dec 17, 2001 at 22:19:30, contains variables:

WELL$ PARAM_ID$ VALUE LN_VALUE HD_VALUE HD_LN_VALU

The following results are for:
PARAM_ID$ = BEN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	2058.000
MW-1S	50	2313.000

Mann-Whitney U test statistic = 1112.000

Probability is 0.720
Chi-square approximation = 0.128 with 1 df

The following results are for:
PARAM_ID$ = CD

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	2145.000
MW-1S	50	2226.000

Mann-Whitney U test statistic = 1199.000
Probability is 0.136
Chi-square approximation = 2.227 with 1 df

The following results are for:
PARAM_ID$ = CU

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	1968.000
MW-1S	50	2403.000

Mann-Whitney U test statistic = 1022.000
Probability is 0.635
Chi-square approximation = 0.226 with 1 df

The following results are for:
PARAM_ID$ = EBN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	2431.500
MW-1S	50	1939.500

Mann-Whitney U test statistic = 1485.500
Probability is 0.001
Chi-square approximation = 11.724 with 1 df

The following results are for:
PARAM_ID$ = HCR

Categorical values encountered during processing are:
WELL$ (2 levels)

MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	1991.500
MW-1S	50	2379.500

Mann-Whitney U test statistic = 1045.500
Probability is 0.771
Chi-square approximation = 0.085 with 1 df

The following results are for:
PARAM_ID$ = TCE

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	1369.500
MW-1S	50	3001.500

Mann-Whitney U test statistic = 423.500
Probability is 0.000
Chi-square approximation = 25.227 with 1 df

The following results are for:
PARAM_ID$ = TCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	2214.000
MW-1S	50	2157.000

Mann-Whitney U test statistic = 1268.000
Probability is 0.038
Chi-square approximation = 4.284 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 91 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group Count Rank Sum

MW-15S 42 2119.000
MW-1S 49 2067.000
Mann-Whitney U test statistic = 1216.000
Probability is 0.058
Chi-square approximation = 3.585 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-15S, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 93 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-15S	43	2195.000
MW-1S	50	2176.000

Mann-Whitney U test statistic = 1249.000
Probability is 0.147
Chi-square approximation = 2.106 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-16.syd,
created Mon Dec 17, 2001 at 22:19:36, contains variables:

WELL$ PARAM_ID$ VALUE LN_VALUE HD_VALUE HD_LN_VALU

The following results are for:
PARAM_ID$ = BEN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	37	2110.500
MW-1S	50	1717.500

Mann-Whitney U test statistic = 1407.500
Probability is 0.000
Chi-square approximation = 20.737 with 1 df

The following results are for:
PARAM_ID$ = CD

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group Count Rank Sum

MW-16	37	1617.000
MW-1S	50	2211.000

Mann-Whitney U test statistic = 914.000
Probability is 0.858
Chi-square approximation = 0.032 with 1 df

The following results are for:
PARAM_ID$ = CU

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	37	1668.000
MW-1S	50	2160.000

Mann-Whitney U test statistic = 965.000
Probability is 0.695
Chi-square approximation = 0.154 with 1 df

The following results are for:
PARAM_ID$ = EBN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	37	2382.000
MW-1S	50	1446.000

Mann-Whitney U test statistic = 1679.000
Probability is 0.000
Chi-square approximation = 45.401 with 1 df

The following results are for:
PARAM_ID$ = HCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	37	1521.500
MW-1S	50	2306.500

Mann-Whitney U test statistic = 818.500
Probability is 0.230
Chi-square approximation = 1.438 with 1 df

The following results are for:

PARAM_ID$ = TCE

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	37	2522.500
MW-1S	50	1305.500

Mann-Whitney U test statistic = 1819.500
Probability is 0.000
Chi-square approximation = 59.033 with 1 df

The following results are for:
PARAM_ID$ = TCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	37	1601.000
MW-1S	50	2227.000

Mann-Whitney U test statistic = 898.000
Probability is 0.644
Chi-square approximation = 0.214 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 85 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	36	2087.500
MW-1S	49	1567.500

Mann-Whitney U test statistic = 1421.500
Probability is 0.000
Chi-square approximation = 28.936 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-16, MW-1S

Kruskal-Wallis One-Way Analysis of Variance for 87 cases
Dependent variable is VALUE

Grouping variable is WELL$

Group	Count	Rank Sum
MW-16	37	2172.000
MW-1S	50	1656.000

Mann-Whitney U test statistic = 1469.000
Probability is 0.000
Chi-square approximation = 23.239 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-3.syd,
created Mon Dec 17, 2001 at 22:19:42, contains variables:

WELL$ PARAM_ID$ VALUE LN_VALUE HD_VALUE HD_LN_VALU

The following results are for:
PARAM_ID$ = BEN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2213.000
MW-3	50	2837.000

Mann-Whitney U test statistic = 938.000
Probability is 0.013
Chi-square approximation = 6.193 with 1 df

The following results are for:
PARAM_ID$ = CD

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2525.000
MW-3	50	2525.000

Mann-Whitney U test statistic = 1250.000
Probability is 1.000
Chi-square approximation = 0.000 with 1 df

The following results are for:
PARAM_ID$ = CU

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases

Dependent variable is VALUE
 Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2596.500
MW-3	50	2453.500

Mann-Whitney U test statistic = 1321.500
Probability is 0.558
Chi-square approximation = 0.343 with 1 df

The following results are for:
 PARAM_ID$ = EBN

Categorical values encountered during processing are:
WELL$ (2 levels)
 MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
 Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1932.500
MW-3	50	3117.500

Mann-Whitney U test statistic = 657.500
Probability is 0.000
Chi-square approximation = 19.074 with 1 df

The following results are for:
 PARAM_ID$ = HCR

Categorical values encountered during processing are:
WELL$ (2 levels)
 MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
 Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2506.000
MW-3	50	2544.000

Mann-Whitney U test statistic = 1231.000
Probability is 0.867
Chi-square approximation = 0.028 with 1 df

The following results are for:
 PARAM_ID$ = TCE

Categorical values encountered during processing are:
WELL$ (2 levels)
 MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
 Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1511.500
MW-3	50	3538.500

Mann-Whitney U test statistic = 236.500

Probability is 0.000
Chi-square approximation = 48.863 with 1 df

The following results are for:
PARAM_ID$ = TCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2454.500
MW-3	50	2595.500

Mann-Whitney U test statistic = 1179.500
Probability is 0.434
Chi-square approximation = 0.612 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 98 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	49	1953.500
MW-3	49	2897.500

Mann-Whitney U test statistic = 728.500
Probability is 0.000
Chi-square approximation = 16.537 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-3

Kruskal-Wallis One-Way Analysis of Variance for 100 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2114.500
MW-3	50	2935.500

Mann-Whitney U test statistic = 839.500
Probability is 0.003
Chi-square approximation = 9.079 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-4.syd,
created Mon Dec 17, 2001 at 22:19:50, contains variables:

WELL$	PARAM_ID$	VALUE	LN_VALUE	HD_VALUE	HD_LN_VALU

The following results are for:
PARAM_ID$ = BEN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1631.500
MW-4	51	3519.500

Mann-Whitney U test statistic = 356.500
Probability is 0.000
Chi-square approximation = 42.813 with 1 df

The following results are for:
PARAM_ID$ = CD

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1301.000
MW-4	51	3850.000

Mann-Whitney U test statistic = 26.000
Probability is 0.000
Chi-square approximation = 78.004 with 1 df

The following results are for:
PARAM_ID$ = CU

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2343.500
MW-4	51	2807.500

Mann-Whitney U test statistic = 1068.500
Probability is 0.121
Chi-square approximation = 2.407 with 1 df

The following results are for:
PARAM_ID$ = EBN

Categorical values encountered during processing are:

WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1404.500
MW-4	51	3746.500

Mann-Whitney U test statistic = 129.500
Probability is 0.000
Chi-square approximation = 63.415 with 1 df

The following results are for:
PARAM_ID$ = HCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1275.000
MW-4	51	3876.000

Mann-Whitney U test statistic = 0.000
Probability is 0.000
Chi-square approximation = 78.888 with 1 df

The following results are for:
PARAM_ID$ = TCE

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1276.000
MW-4	51	3875.000

Mann-Whitney U test statistic = 1.000
Probability is 0.000
Chi-square approximation = 74.937 with 1 df

The following results are for:
PARAM_ID$ = TCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group Count Rank Sum

MW-1S 50 1275.000
MW-4 51 3876.000
Mann-Whitney U test statistic = 0.000
Probability is 0.000
Chi-square approximation = 81.758 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 99 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	49	1435.000
MW-4	50	3515.000

Mann-Whitney U test statistic = 210.000
Probability is 0.000
Chi-square approximation = 56.569 with 1 df

The following results are for:
PARAM_ID$ = TX

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-4

Kruskal-Wallis One-Way Analysis of Variance for 101 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	1354.500
MW-4	51	3796.500

Mann-Whitney U test statistic = 79.500
Probability is 0.000
Chi-square approximation = 68.118 with 1 df

SYSTAT Rectangular file C:\CDM\Oct01\1-6B.syd,
created Mon Dec 17, 2001 at 22:19:56, contains variables:

WELL$ PARAM_ID$ VALUE LN_VALUE HD_VALUE HD_LN_VALU

The following results are for:
PARAM_ID$ = BEN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 96 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2368.000
MW-6B	46	2288.000

Mann-Whitney U test statistic = 1093.000
Probability is 0.612
Chi-square approximation = 0.258 with 1 df

The following results are for:
PARAM_ID$ = CD

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 96 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2375.000
MW-6B	46	2281.000

Mann-Whitney U test statistic = 1100.000
Probability is 0.550
Chi-square approximation = 0.358 with 1 df

The following results are for:
PARAM_ID$ = CU

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 96 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2524.500
MW-6B	46	2131.500

Mann-Whitney U test statistic = 1249.500
Probability is 0.382
Chi-square approximation = 0.763 with 1 df

The following results are for:
PARAM_ID$ = EBN

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 96 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2125.500
MW-6B	46	2530.500

Mann-Whitney U test statistic = 850.500
Probability is 0.016
Chi-square approximation = 5.803 with 1 df

The following results are for:
PARAM_ID$ = HCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 96 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2492.500
MW-6B	46	2163.500

Mann-Whitney U test statistic = 1217.500
Probability is 0.521
Chi-square approximation = 0.413 with 1 df

The following results are for:
PARAM_ID$ = TCE

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 96 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2683.000
MW-6B	46	1973.000

Mann-Whitney U test statistic = 1408.000
Probability is 0.058
Chi-square approximation = 3.584 with 1 df

The following results are for:
PARAM_ID$ = TCR

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 96 cases
Dependent variable is VALUE
Grouping variable is WELL$

Group	Count	Rank Sum
MW-1S	50	2216.000
MW-6B	46	2440.000

Mann-Whitney U test statistic = 941.000
Probability is 0.028
Chi-square approximation = 4.857 with 1 df

The following results are for:
PARAM_ID$ = TOL

Categorical values encountered during processing are:
WELL$ (2 levels)
MW-1S, MW-6B

Kruskal-Wallis One-Way Analysis of Variance for 94 cases

Appendix G
Annual Groundwater Monitoring Report for 2001

This annual report summarizes the groundwater monitoring which was conducted during 2001 at the Phibro-Tech, Inc. facility, based on three rounds of sampling which occurred in April, July and October of 2001. Also included in this report are graphs with concentrations versus time for key compounds of concern at the facility.

G.1 Groundwater Elevation, Gradient, and Flow Direction

During each of the three sampling rounds, depth to groundwater was measured at 15 shallow wells and 7 deep wells at the facility (with the exception of MW-10 which was inaccessible during the October sampling event). Table 5-1 in each of the groundwater sampling reports from 2001 lists the depths to water and groundwater elevations for each well sampled.

During 2001, groundwater levels were lowest in October (shallow well elevations ranging from 105.21 to 107.54 feet above msl, and deep well elevations ranging from 105.08 to 107.39 feet above msl). The highest groundwater levels were recorded in July (shallow well elevations 109.76 to 111.58 feet above msl, and deep well elevations 109.62 to 111.61 feet above msl).

Groundwater gradients in the shallow wells during 2001 ranged from 0.35 foot per 100 feet (April) to 0.38 feet per 100 feet (October). In the deep wells, the groundwater gradients ranged from 0.26 foot per 100 feet (July) to 0.54 foot per 100 feet (October).

Direction of groundwater flow in the shallow wells during 2001 was consistently towards the southwest. The groundwater flow direction in the deep wells during 2001 was also consistently towards the southwest.

G.2 Groundwater Quality

Tables contained in Section 6 and Appendix B of the quarterly groundwater monitoring reports summarize current and historical concentrations of key contaminants of concern (total and hexavalent chromium, cadmium, copper, purgeable aromatic compounds, and trichloroethene), and groundwater elevations for each shallow groundwater monitoring well. Specific compounds of concern are discussed below with respect to groundwater monitoring in 2001.

Trichloroethene

As in previous years, trichloroethene (TCE) was the primary purgeable halogenated organic compound detected in 2001. It was detected in all 14 monitoring wells sampled during April, July and October. The highest concentration of TCE detected in 2001 was 1,700 μg/L in shallow well MW-11 during the April sampling event. The highest concentration detected in the deep wells was 44 µg/L in MW-04A during the October sampling round. Historical TCE concentrations, including 2001 data, for each sampled shallow well are shown on the accompanying graphs.

Purgeable Aromatic Organic Compounds

Historical evidence indicates that benzene is not a contaminant of concern for the facility. During 2001 it was detected in MW-04 at a concentration of 2.1 µg/L in April, MW-01D at a concentration of 1.5 µg/L in October and MW-15D at a concentration of 2.2 µg/L. The highest concentration of total BTEX compounds (benzene, toluene, ethylbenzene, and xylenes) detected in 2001 was 3,700 µg/L in MW-04 during the October sampling event. Historical BTEX concentrations for each sampled shallow well are shown on the accompanying graphs.

Total Chromium

Chromium was detected in five wells during 2001, three of which had detections above the maximum contaminant level (MCL) of 0.05 mg/L. Total chromium concentrations that exceeded the MCL were reported in wells MW-04 (April, July and October), MW-09 (July and October) and MW-14S (October). The concentrations of total chromium in MW-04 ranged from 12.6 mg/L in July to 39.8 mg/L in October. The total chromium concentration in MW-09 ranged from 0.011 mg/L in April to 1.3 mg/L in October. The total chromium concentration in well MW-14S during October 2001 was 0.14 mg/L. Historical total chromium concentrations for each of the sampled shallow wells are shown on the accompanying graphs.

Hexavalent Chromium

Hexavalent chromium was detected at a concentration above the reporting limit in 12 wells at least once during 2001. The highest levels were detected at the location of monitoring well MW-04. During 2001, hexavalent chromium was detected in MW-04 at concentrations ranging from 11 mg/L in April to 32 mg/L in October. The second highest concentration of hexavalent chromium was detected in well MW-09 at a concentration ranging from 0.0043 mg/L in April to 1.1 mg/L in October. Historical hexavalent chromium concentrations for wells MW-04, MW-07, MW-09, and MW-14S are shown on the accompanying graphs. All other wells at the facility have had non-detections with only sporadic, low concentrations of hexavalent chromium detected over time.

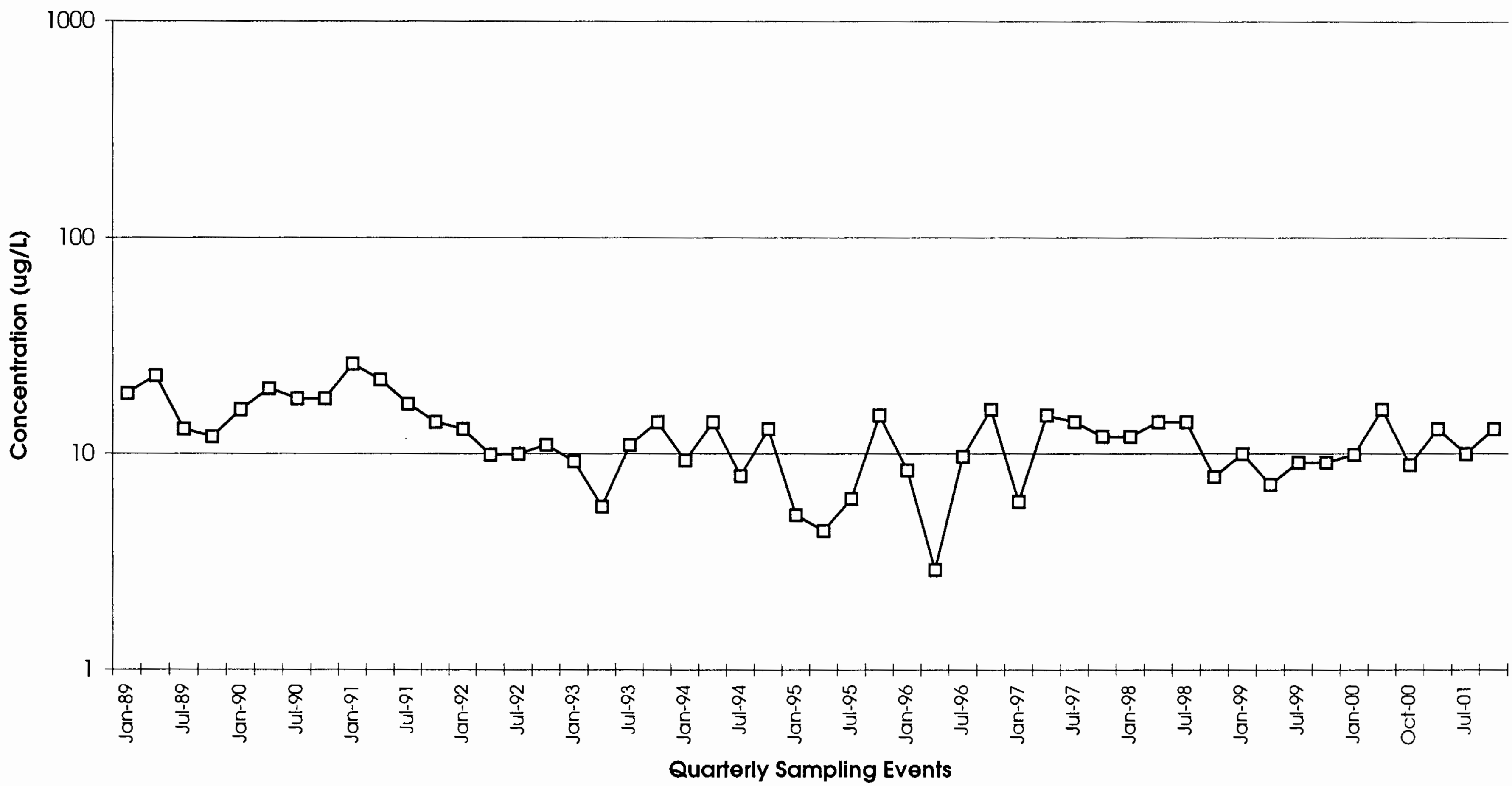
Cadmium

The only well which consistently has detections of cadmium is MW-04. During 2001, cadmium concentrations in MW-04 ranged from 0.32 mg/L in July to 0.44 mg/L in October. Historical cadmium concentrations for MW-04, MW-09, MW-14S, and MW-15S are shown on the accompanying graphs. Generally, all other wells at the facility have historically had only non-detections of cadmium.

Copper

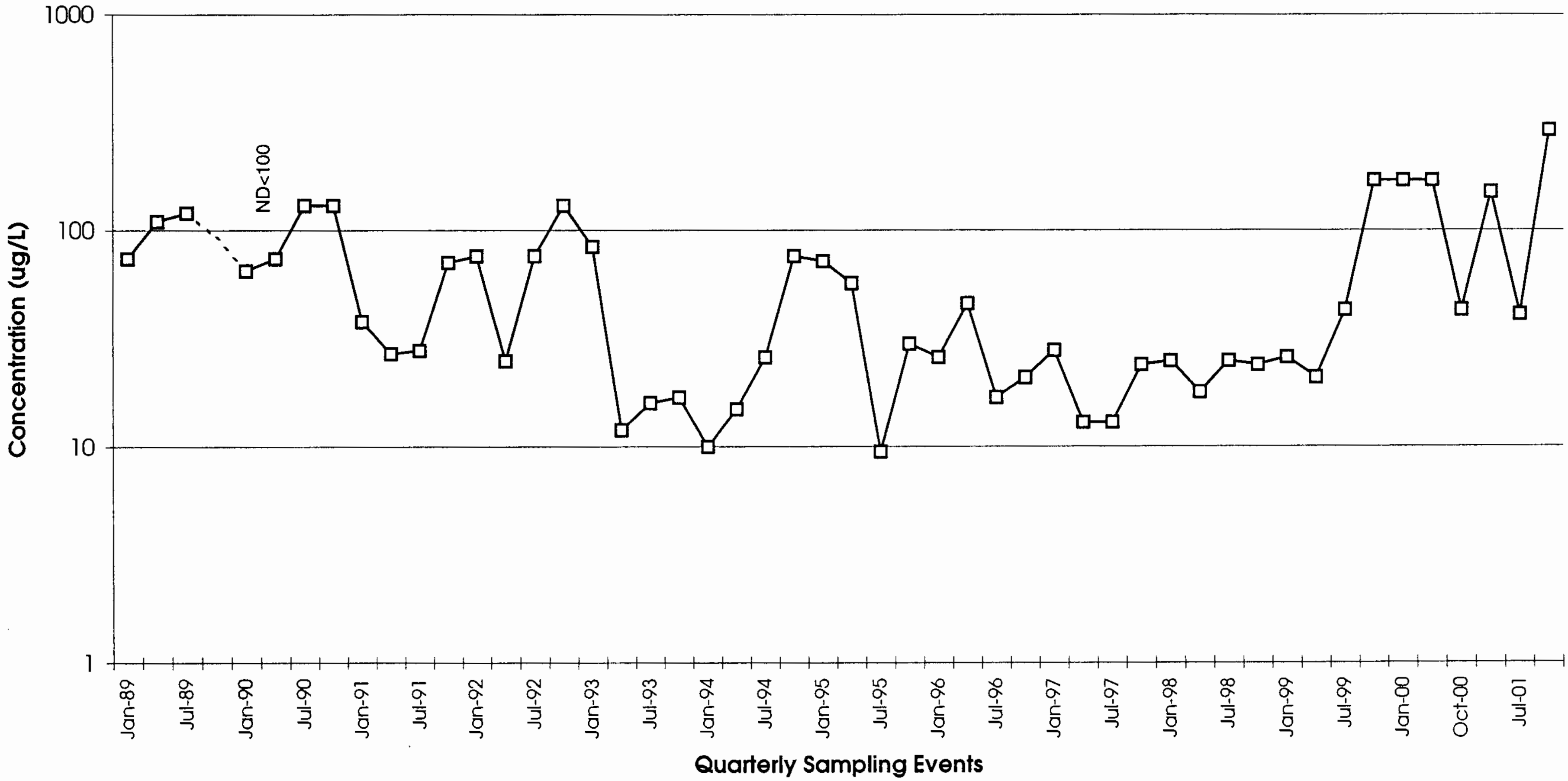
Copper was detected in two wells in 2001 with concentrations ranging from 0.030mg/L in MW-14S (April) to 0.073 mg/L in MW-07 (October). These concentrations are below the secondary MCL of 1.3 mg/L. Historically, copper has not been detected, or has been detected only occasionally in very low concentrations near the detection limit of 0.025 mg/L.

Phibro-Tech, Inc.
TCE Concentrations
MW-01S

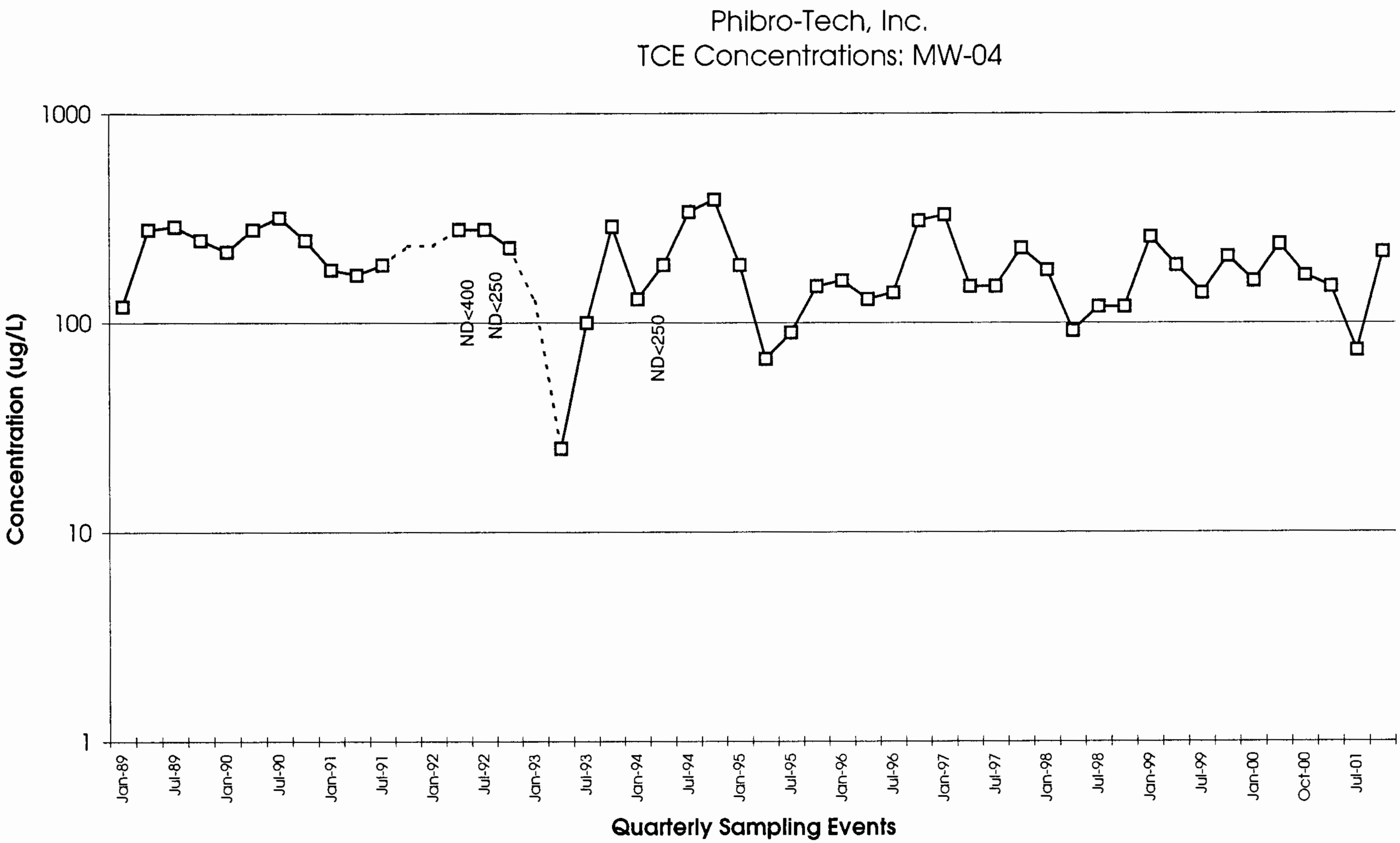


Tce01.xlc

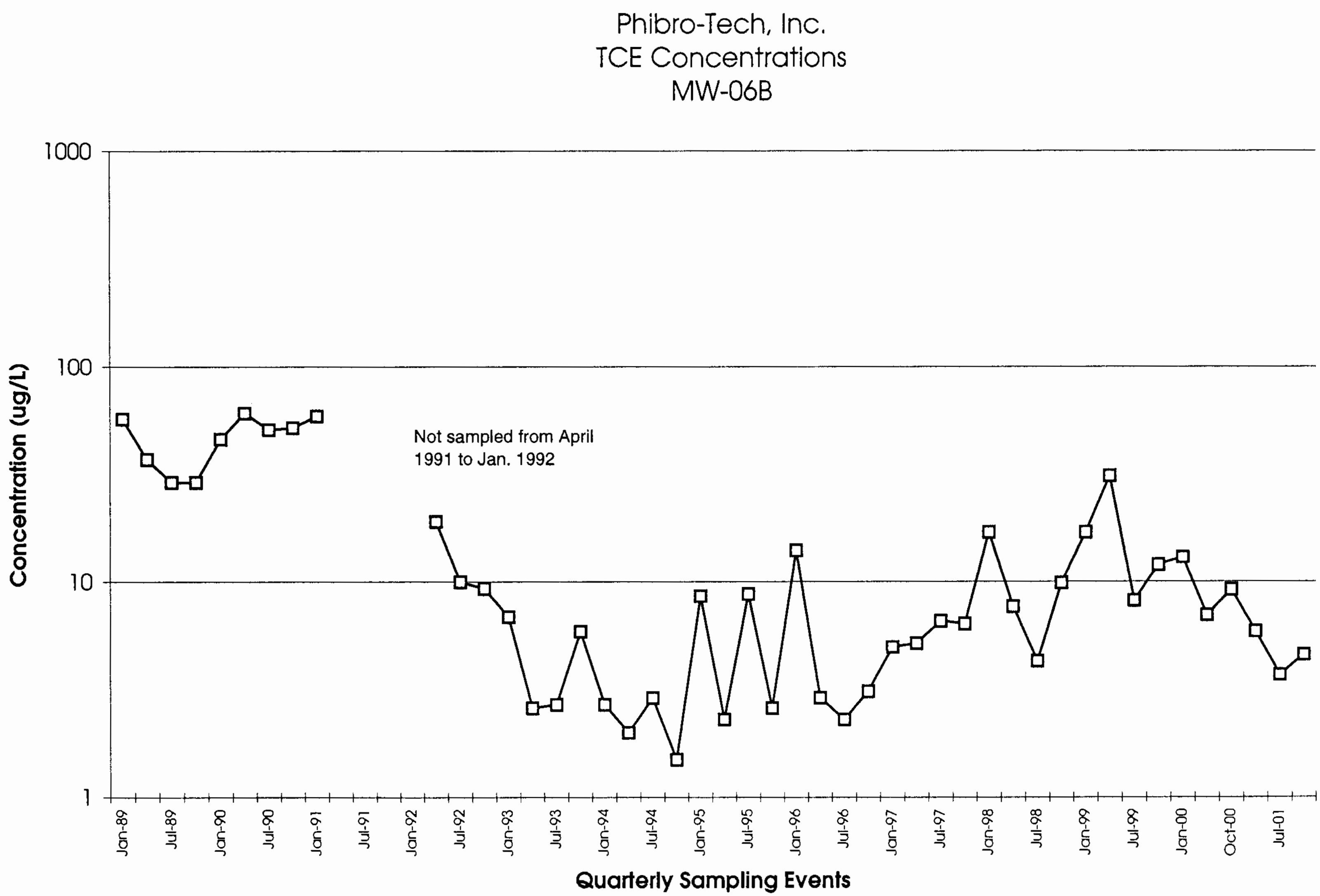
Phibro-Tech, Inc.
TCE Concentrations
MW-03



Tce03.xlc


Phibro-Tech, Inc.
TCE Concentrations: MW-04
1000
100
10
1
Concentration (ug/L)
ND<400
ND<250
ND<250
Jan-89
Jul-89
Jan-90
Jul-90
Jan-91
Jul-91
Jan-92
Jul-92
Jan-93
Jul-93
Jan-94
Jul-94
Jan-95
Jul-95
Jan-96
Jul-96
Jan-97
Jul-97
Jan-98
Jul-98
Jan-99
Jul-99
Jan-00
Oct-00
Jul-01
Quarterly Sampling Events

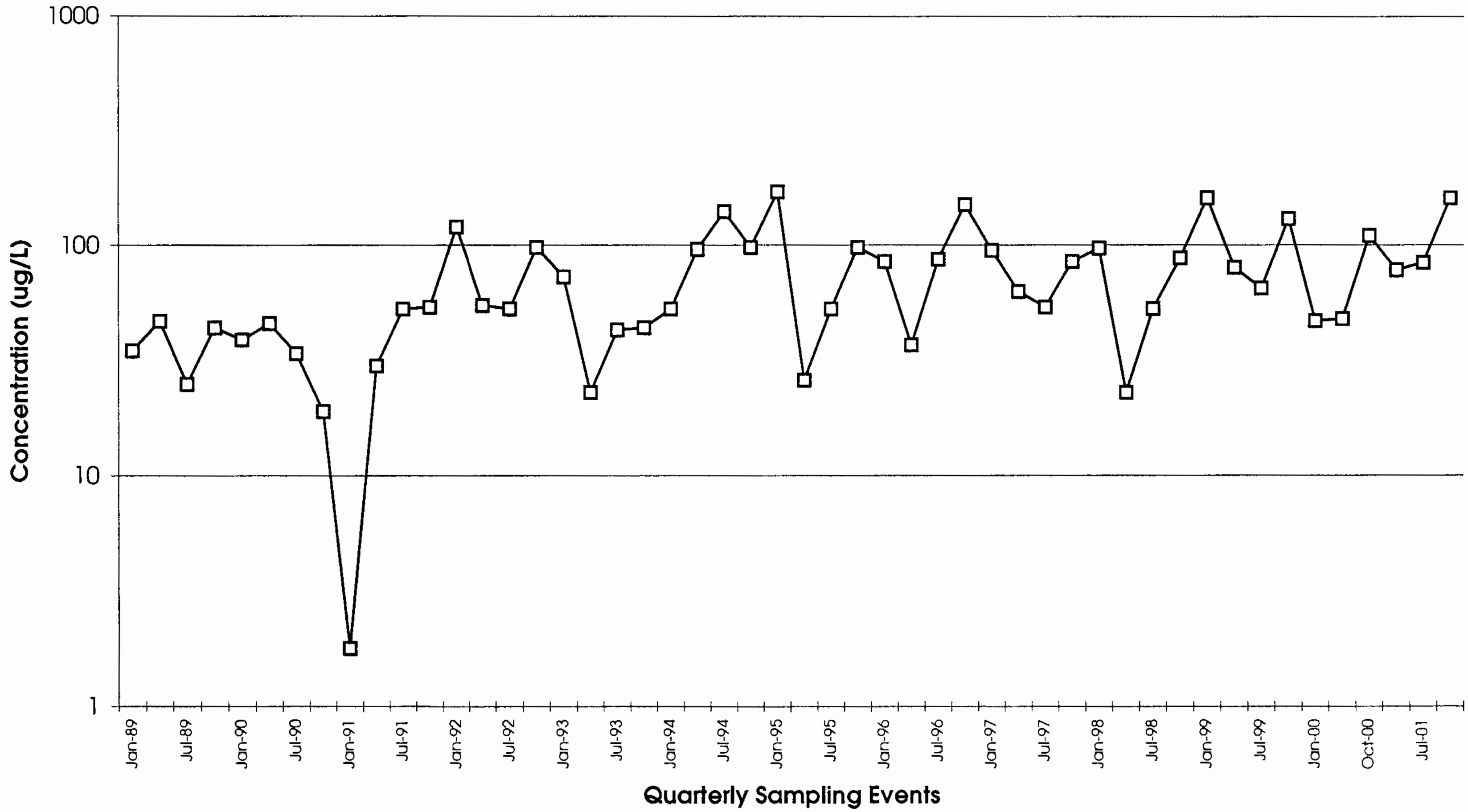
Tce04.xlc



Phibro-Tech, Inc.
TCE Concentrations
MW-06B
1000
100
10
1
Concentration (ug/L)
Not sampled from April
1991 to Jan. 1992
Jan-89
Jul-89
Jan-90
Jul-90
Jan-91
Jul-91
Jan-92
Jul-92
Jan-93
Jul-93
Jan-94
Jul-94
Jan-95
Jul-95
Jan-96
Jul-96
Jan-97
Jul-97
Jan-98
Jul-98
Jan-99
Jul-99
Jan-00
Oct-00
Jul-01
Quarterly Sampling Events

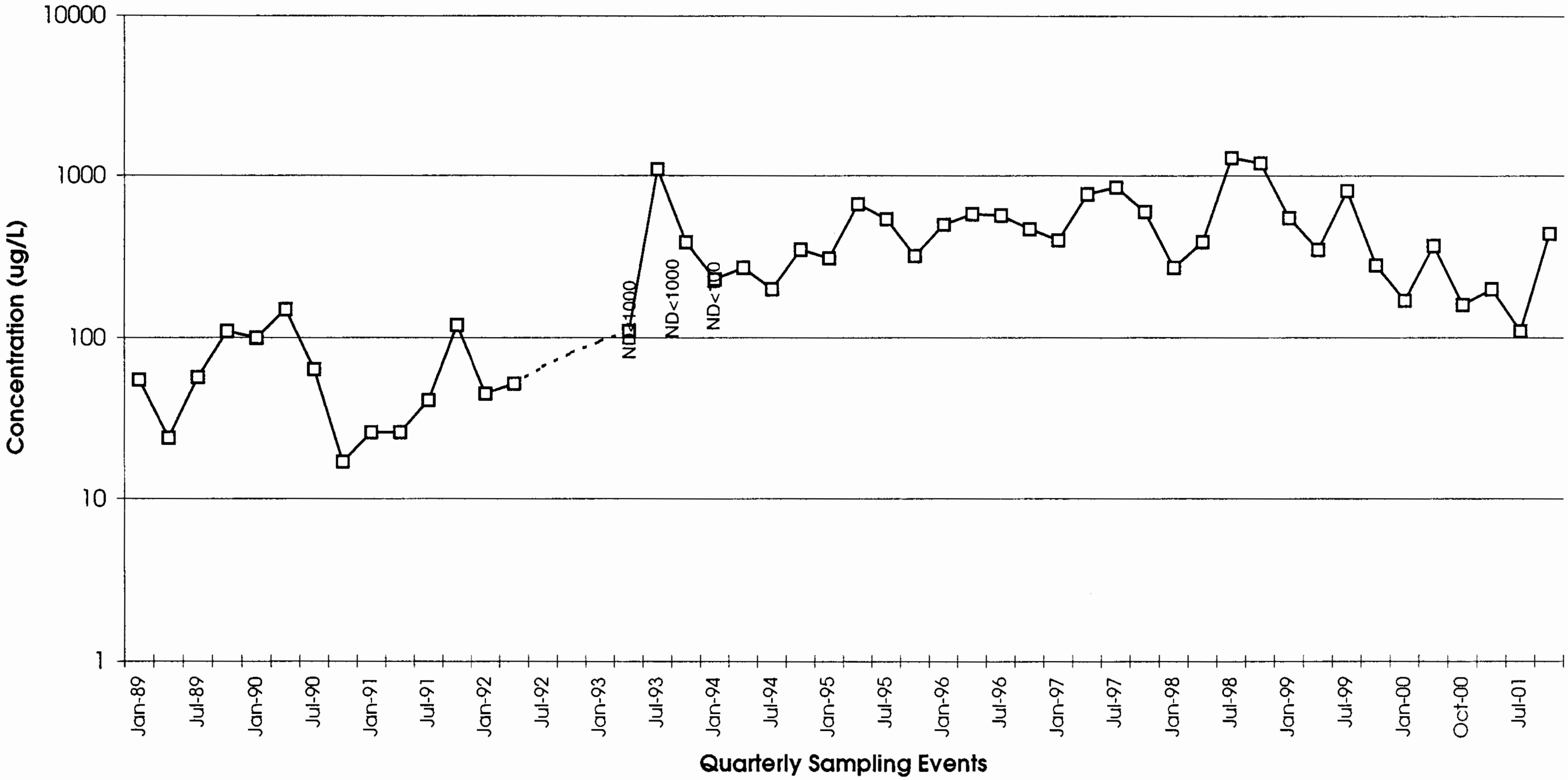
Tce06b.xlc

Phibro-Tech, Inc.
TCE Concentrations
MW-07



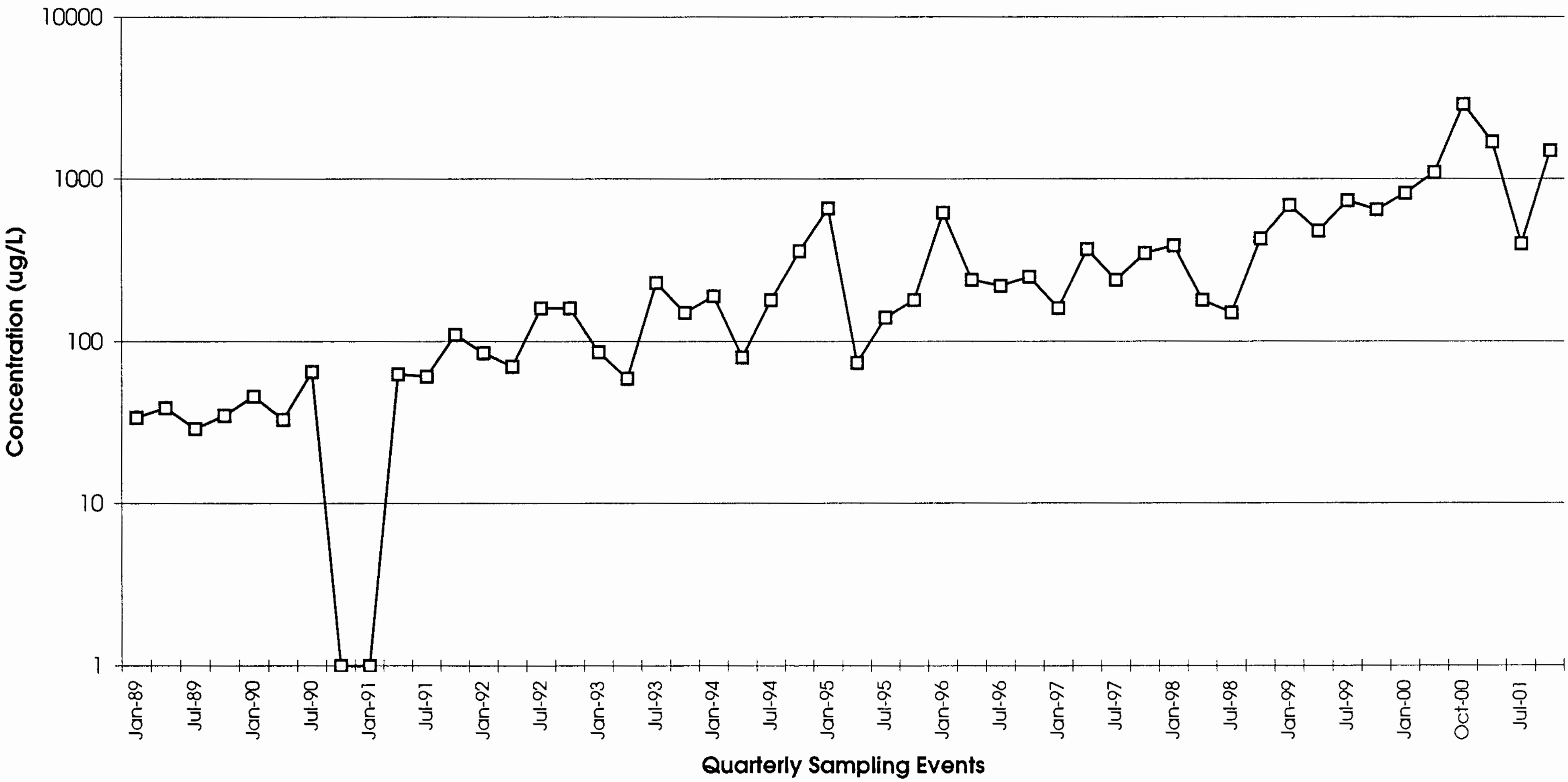
Tce07.xlc

Phibro-Tech, Inc.
TCE Concentrations: MW-09



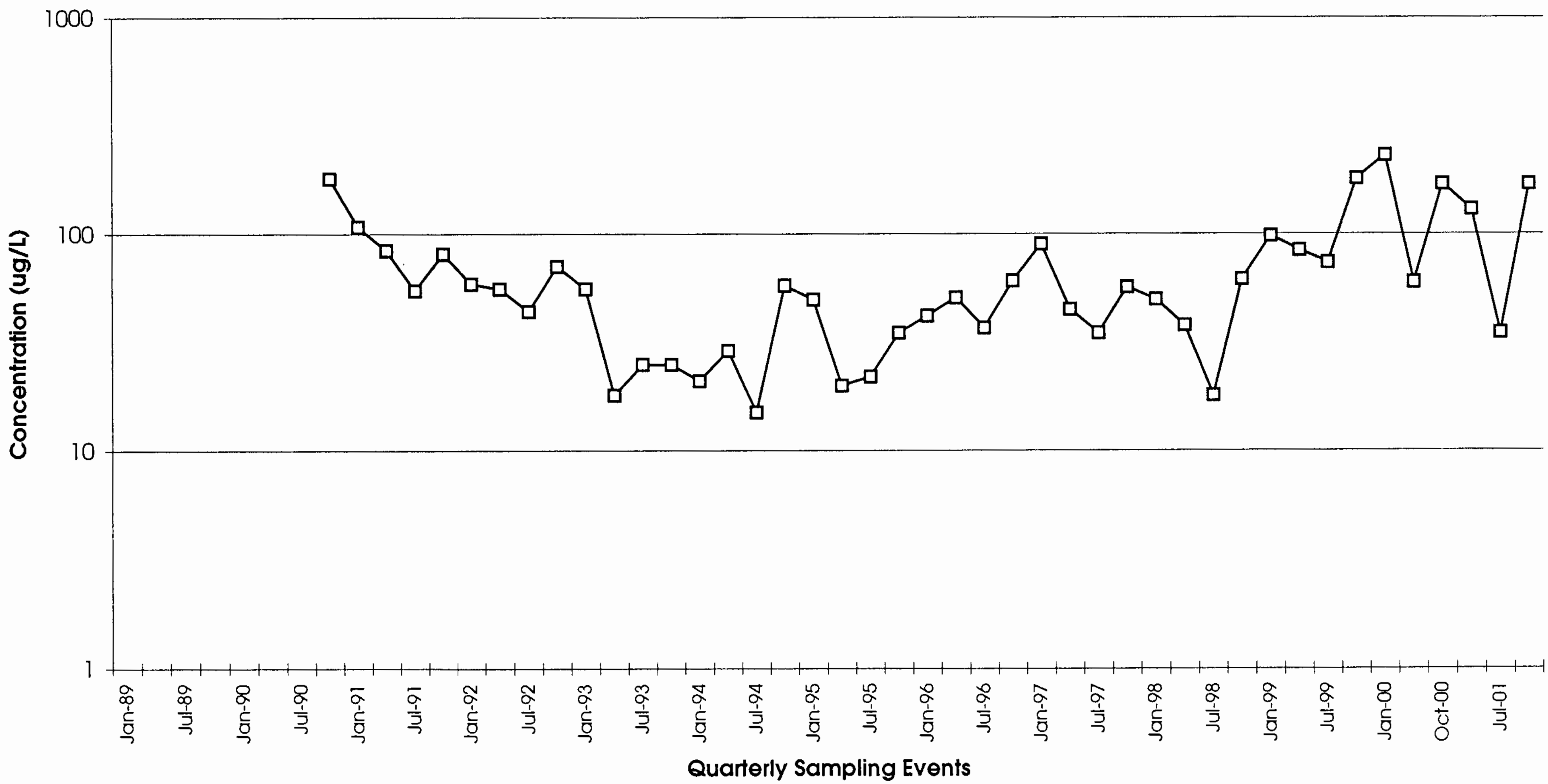
Tce09.xlc

Phibro-Tech, Inc.
TCE Concentrations
MW-11



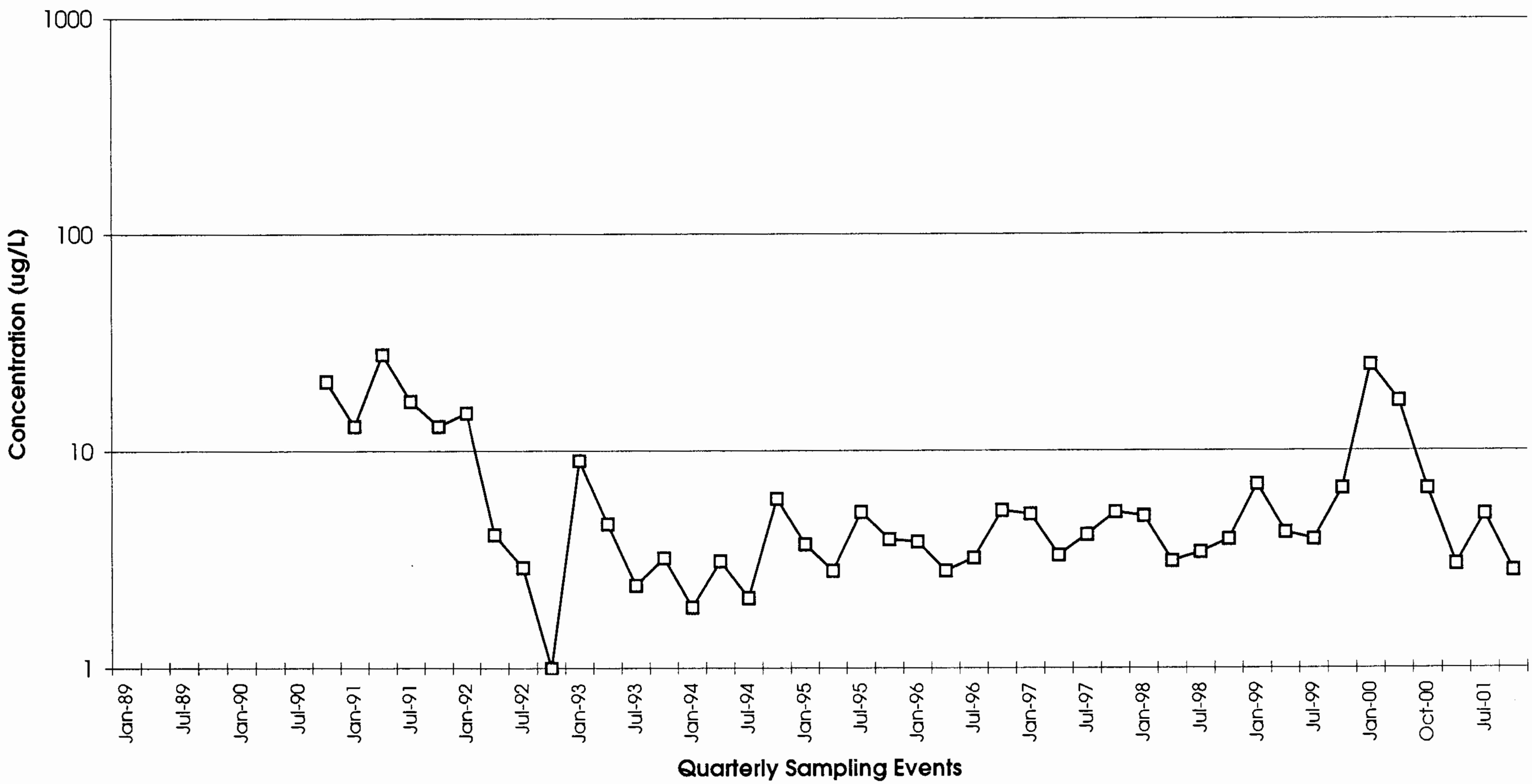
Tce11.xlc

Phibro-Tech, Inc.
TCE Concentrations
MW-14S



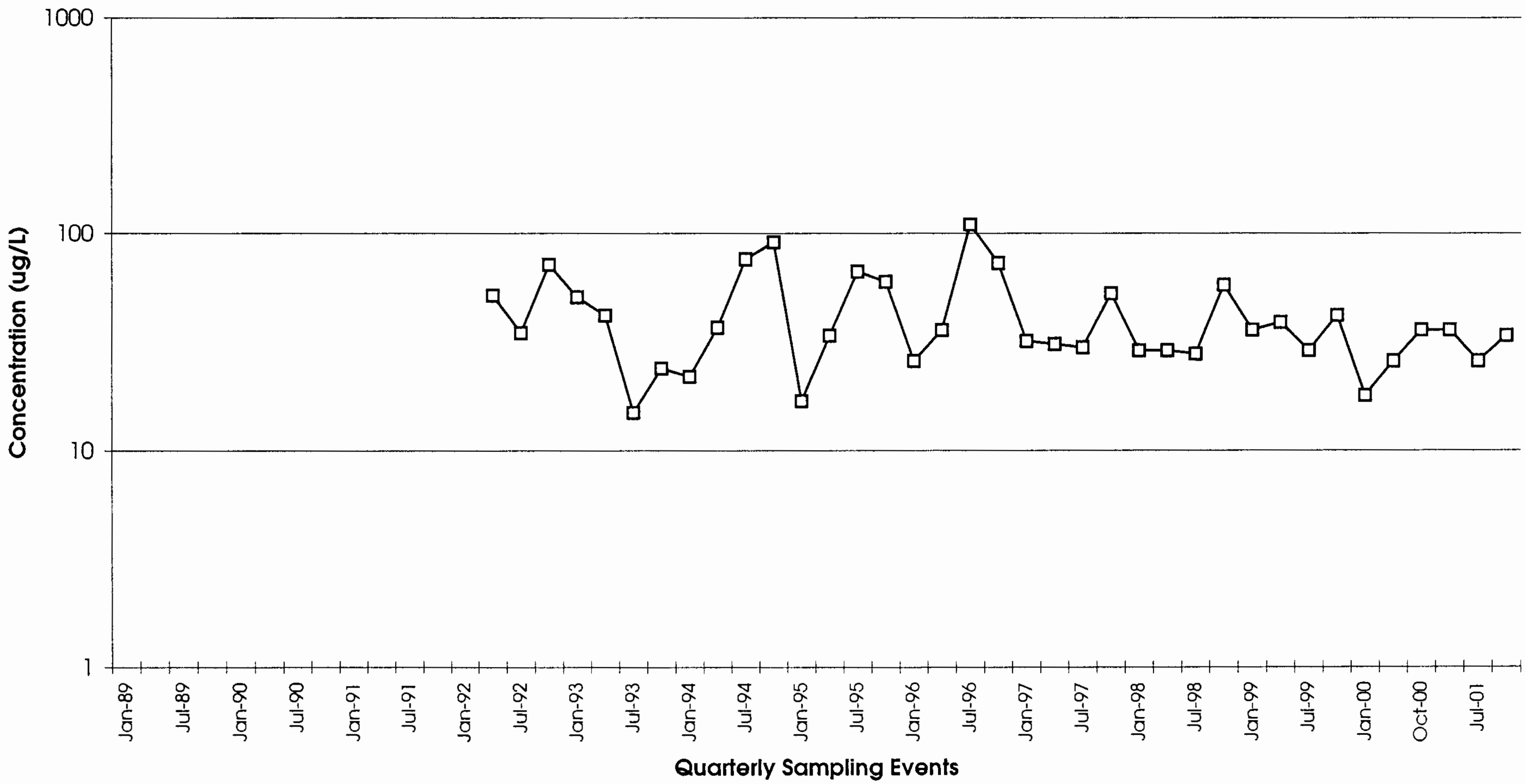
Tce14s.xlc

Phibro-Tech, Inc.
TCE Concentrations
MW-15S



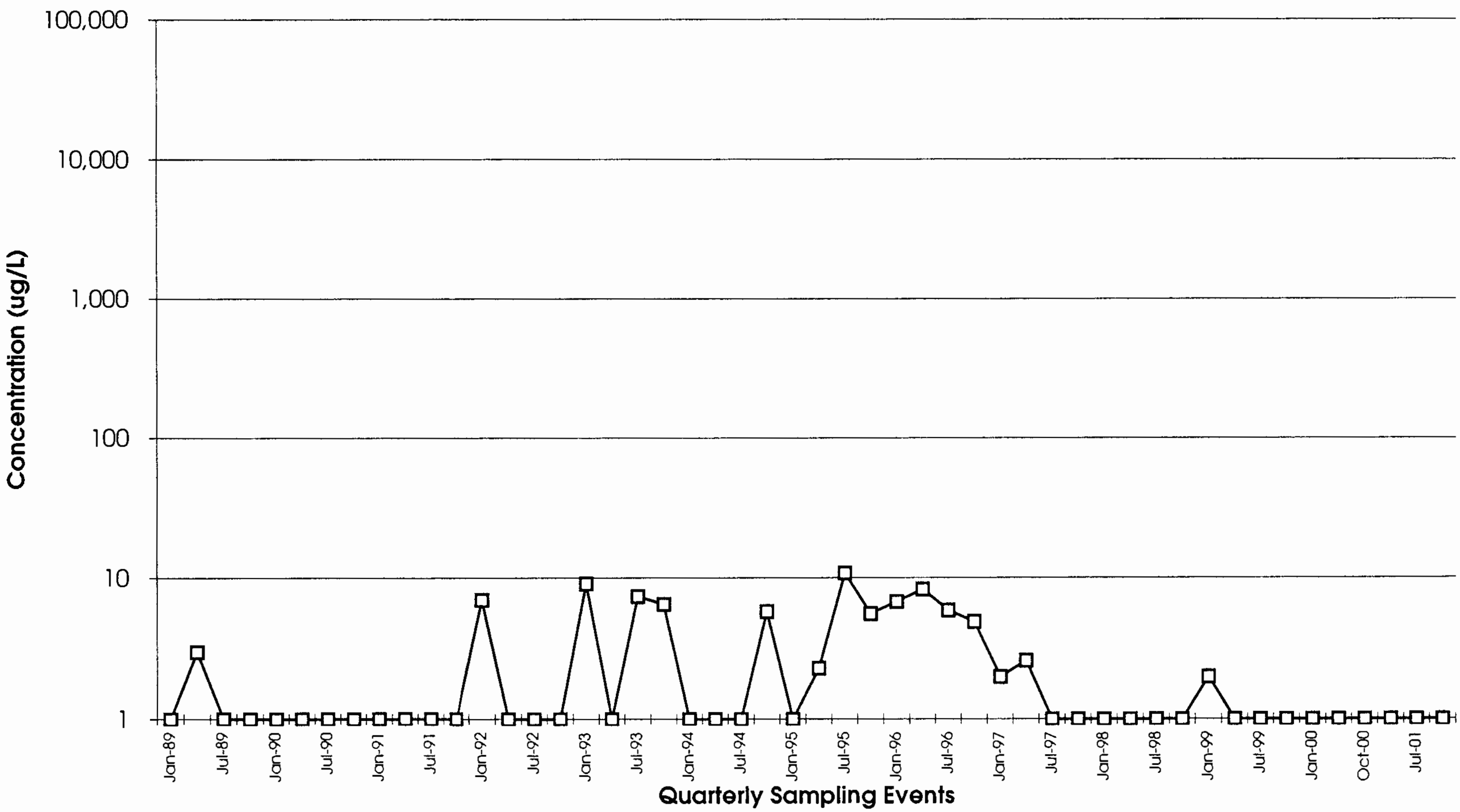
Tce15s.xlc

Phibro-Tech, Inc.
TCE Concentrations
MW-16



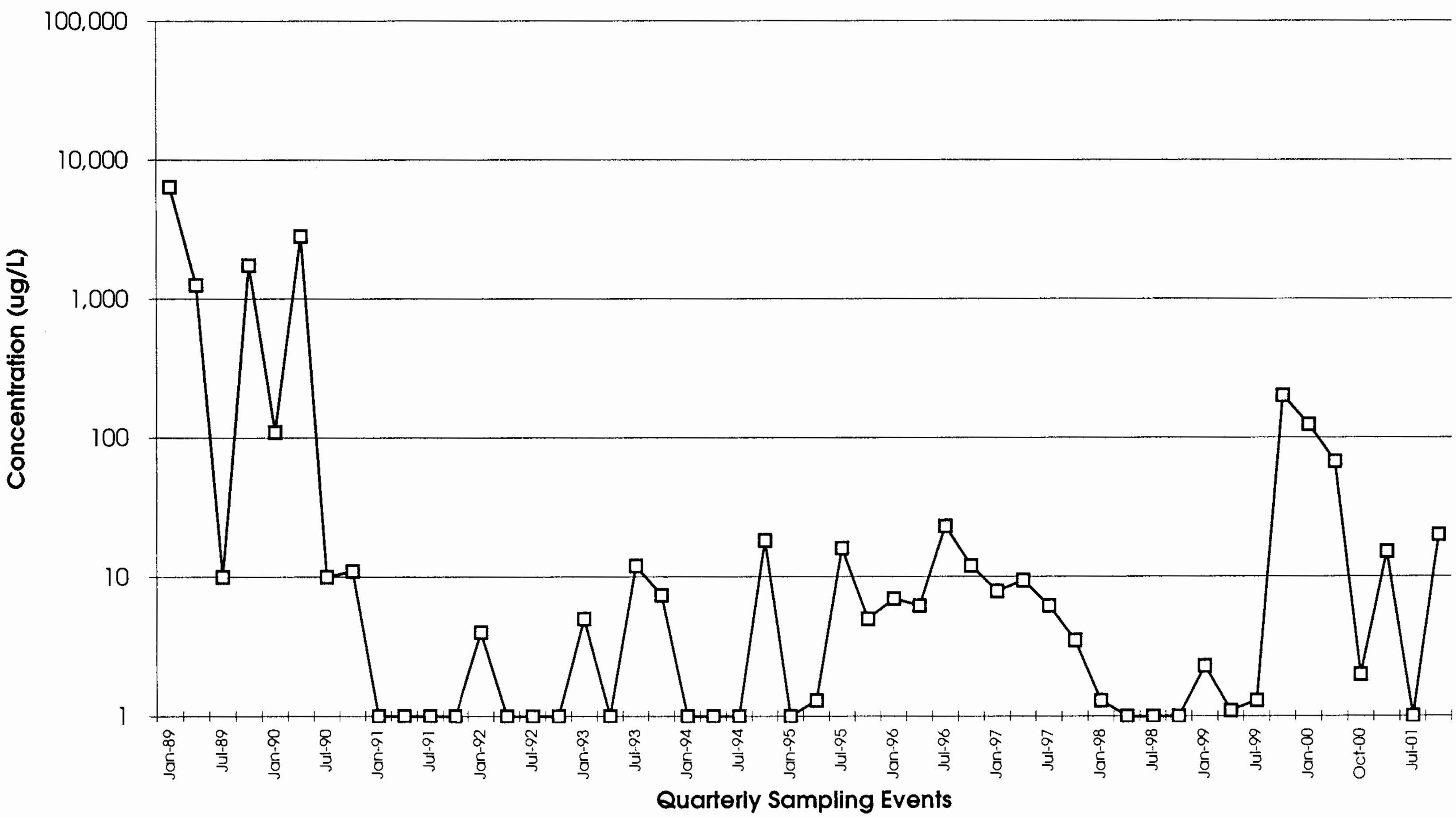
Tce16.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-01S



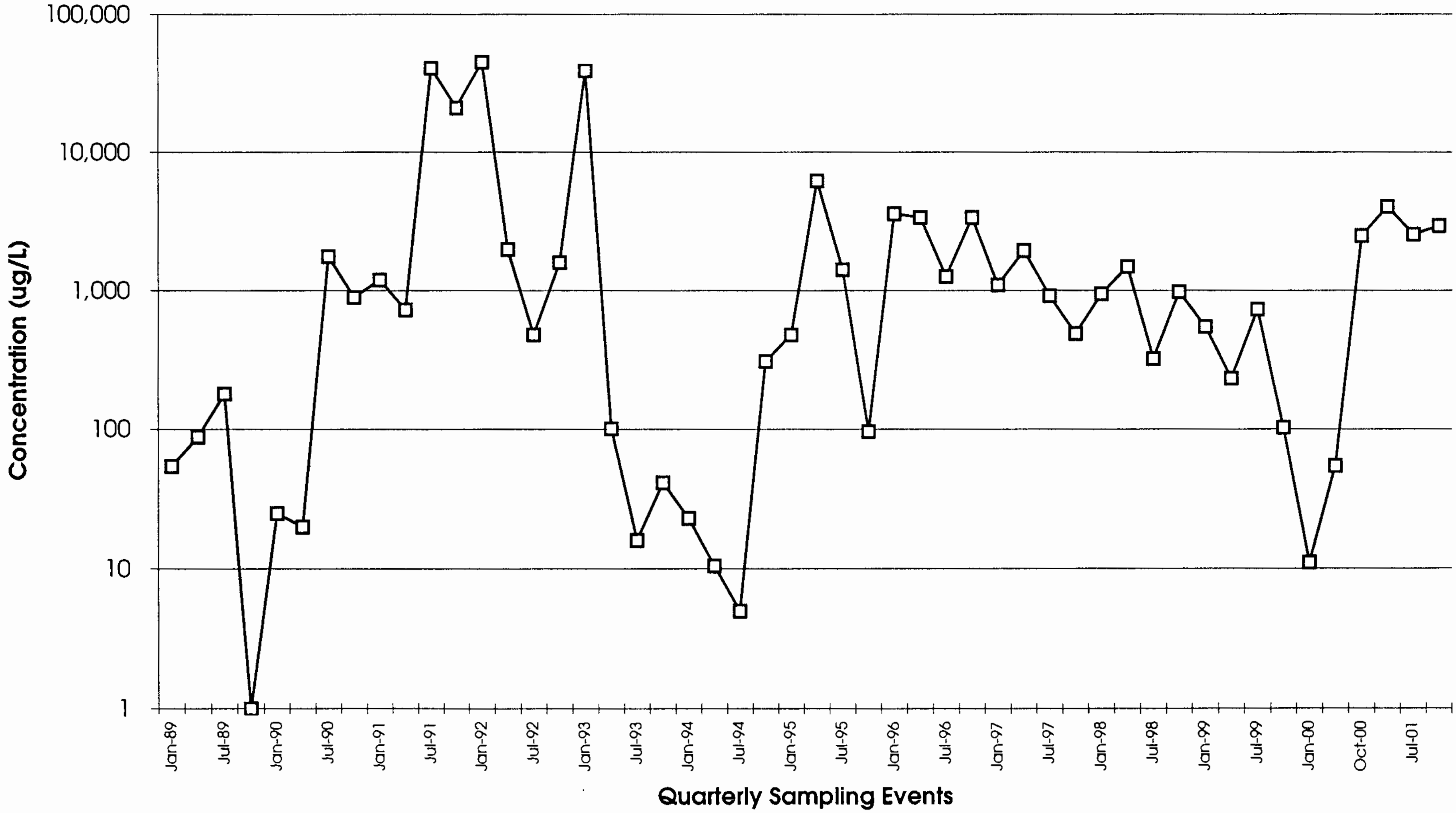
Btex01.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-03



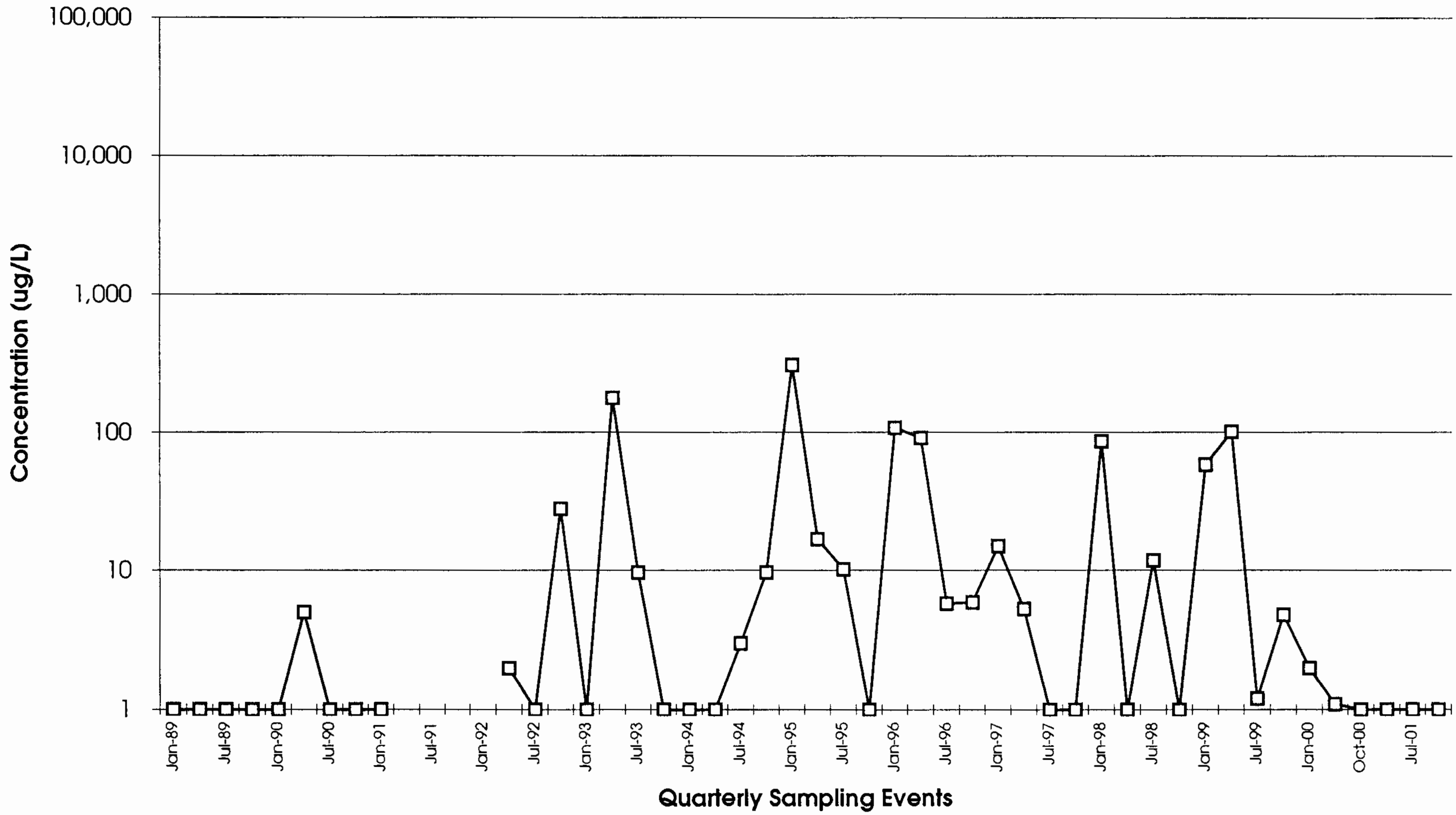
Btex03.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-04



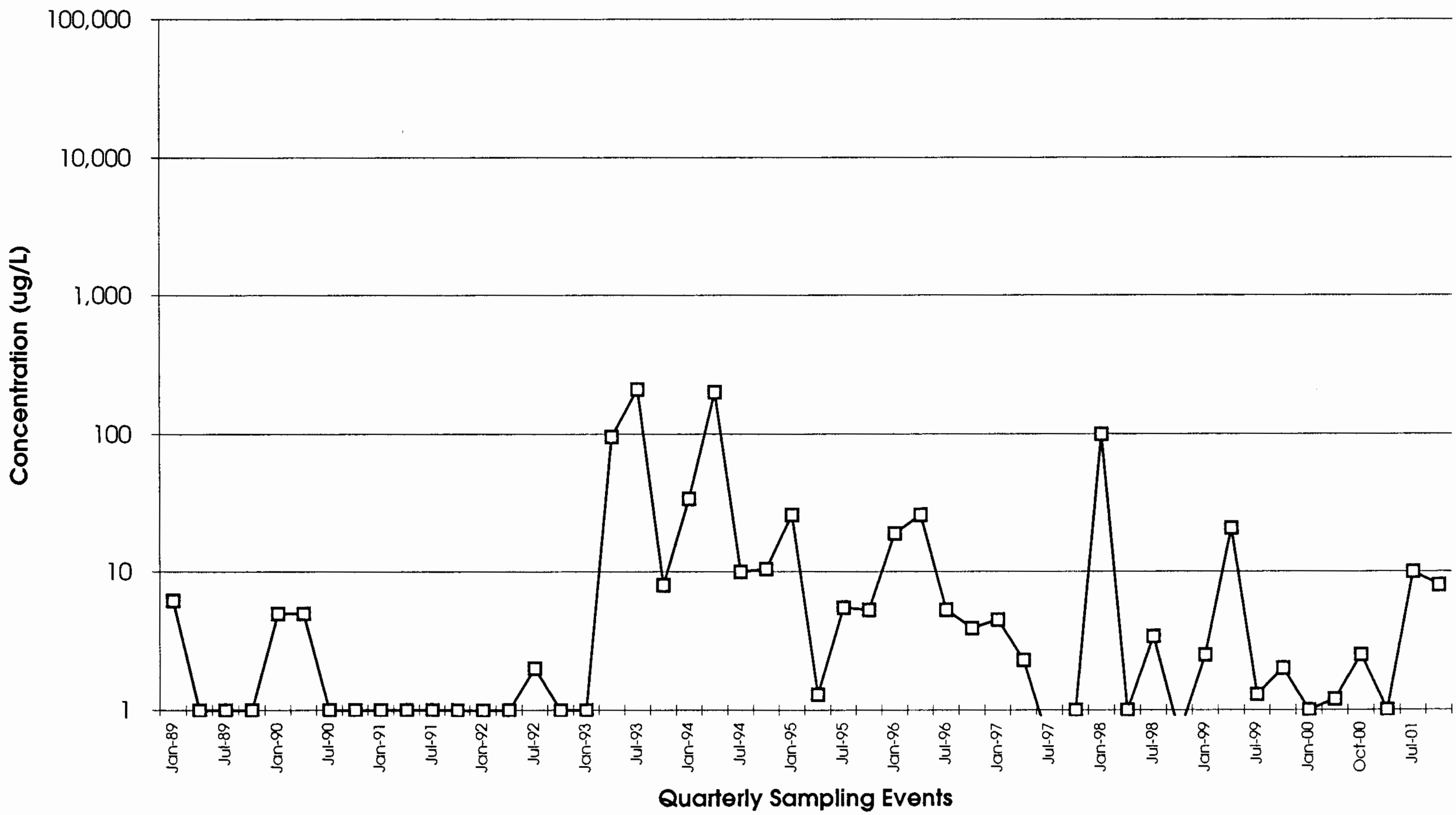
Btex04.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-06B



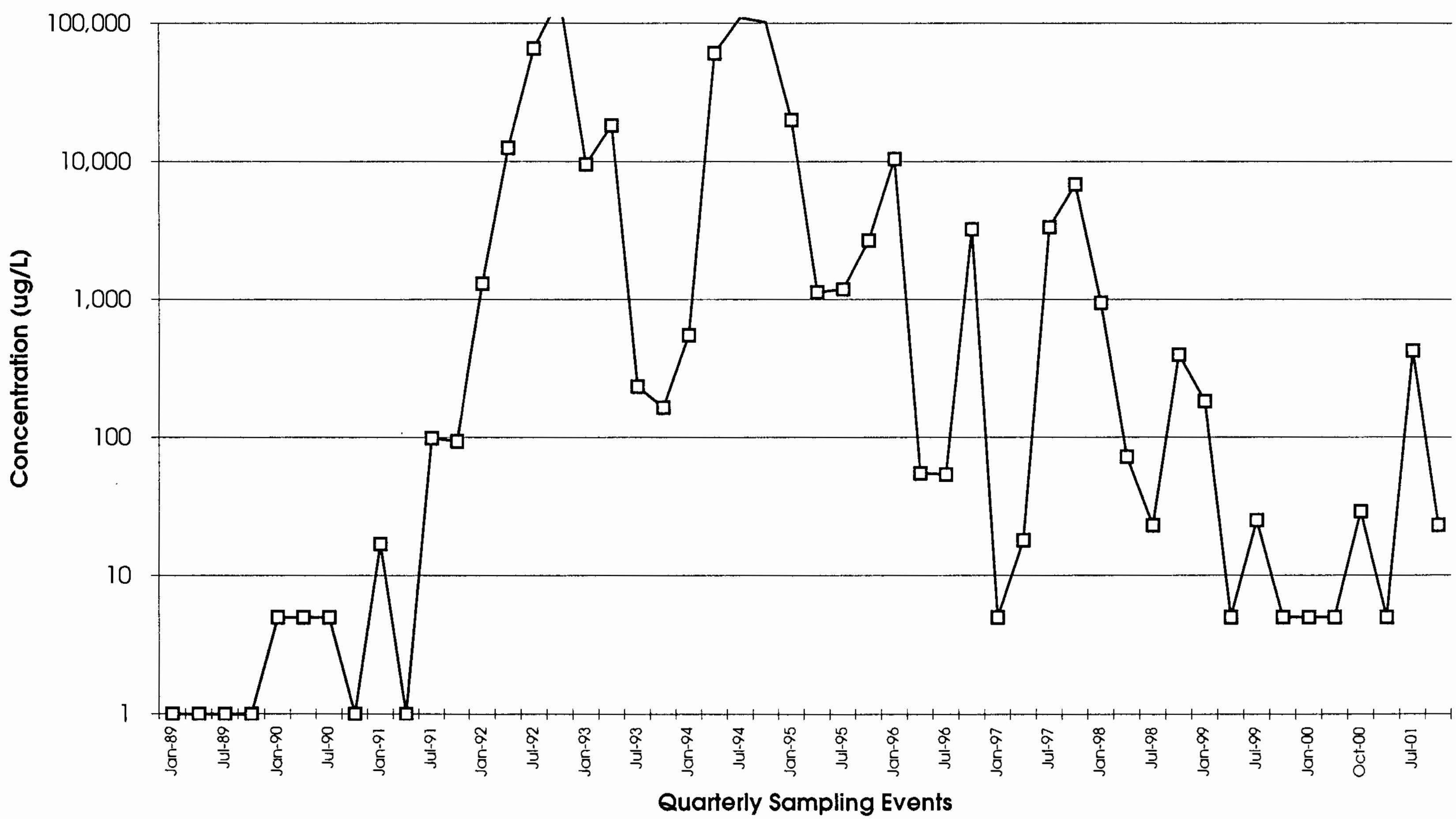
Btex06b.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-07



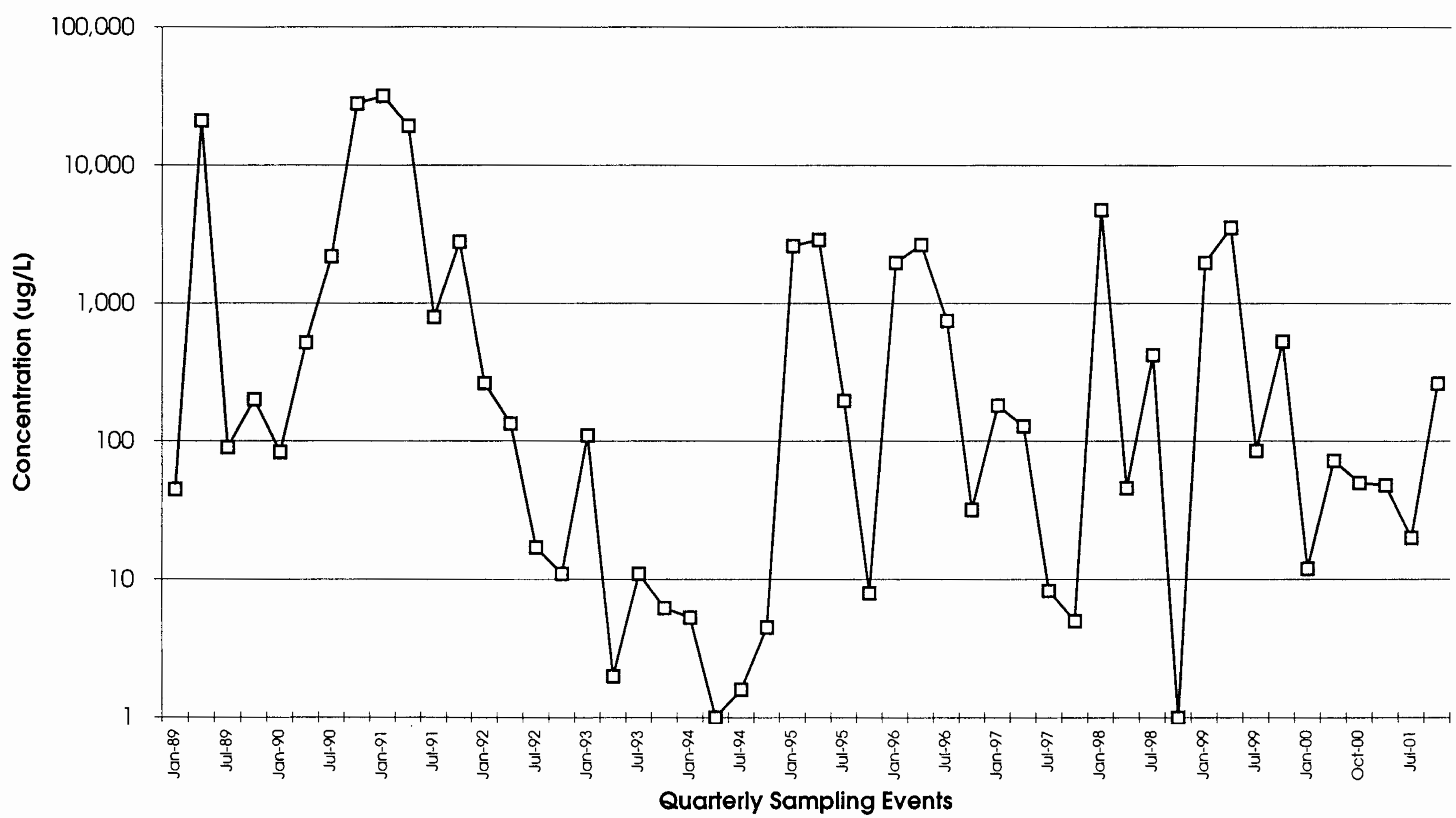
Btex07.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-09

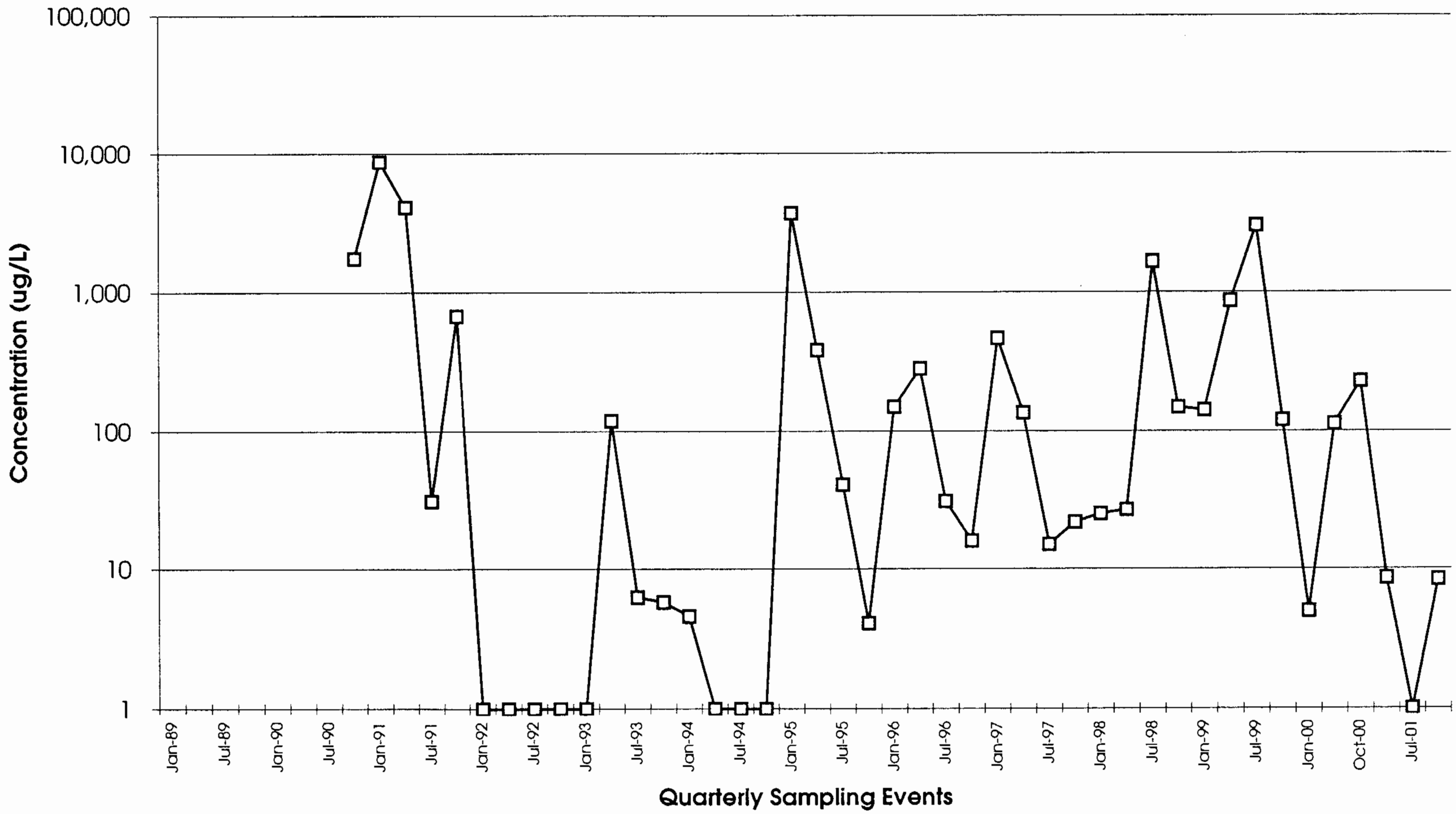


Btex09.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-11

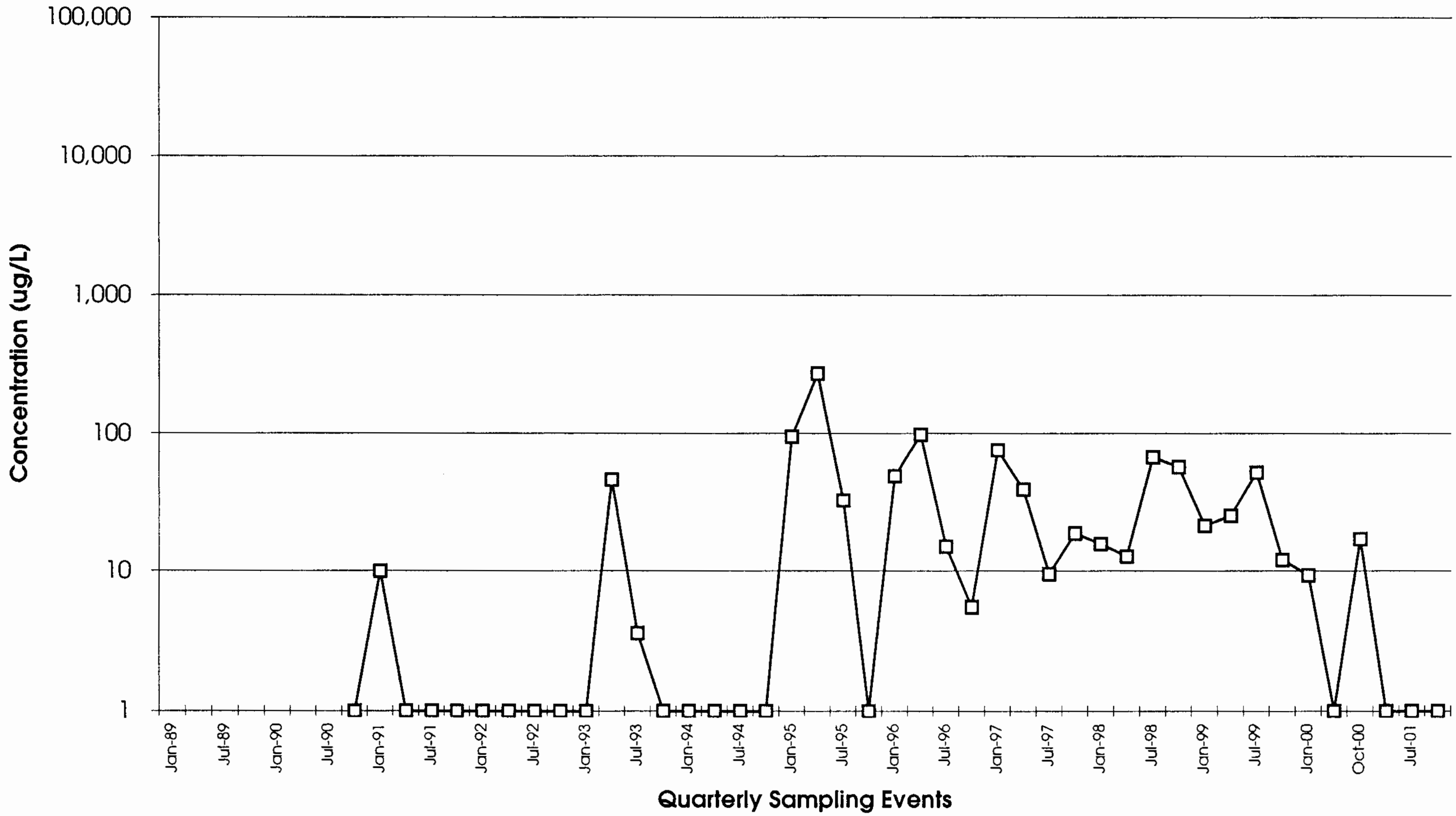


Phibro-Tech, Inc.
Total BTEX Concentrations
MW-14S



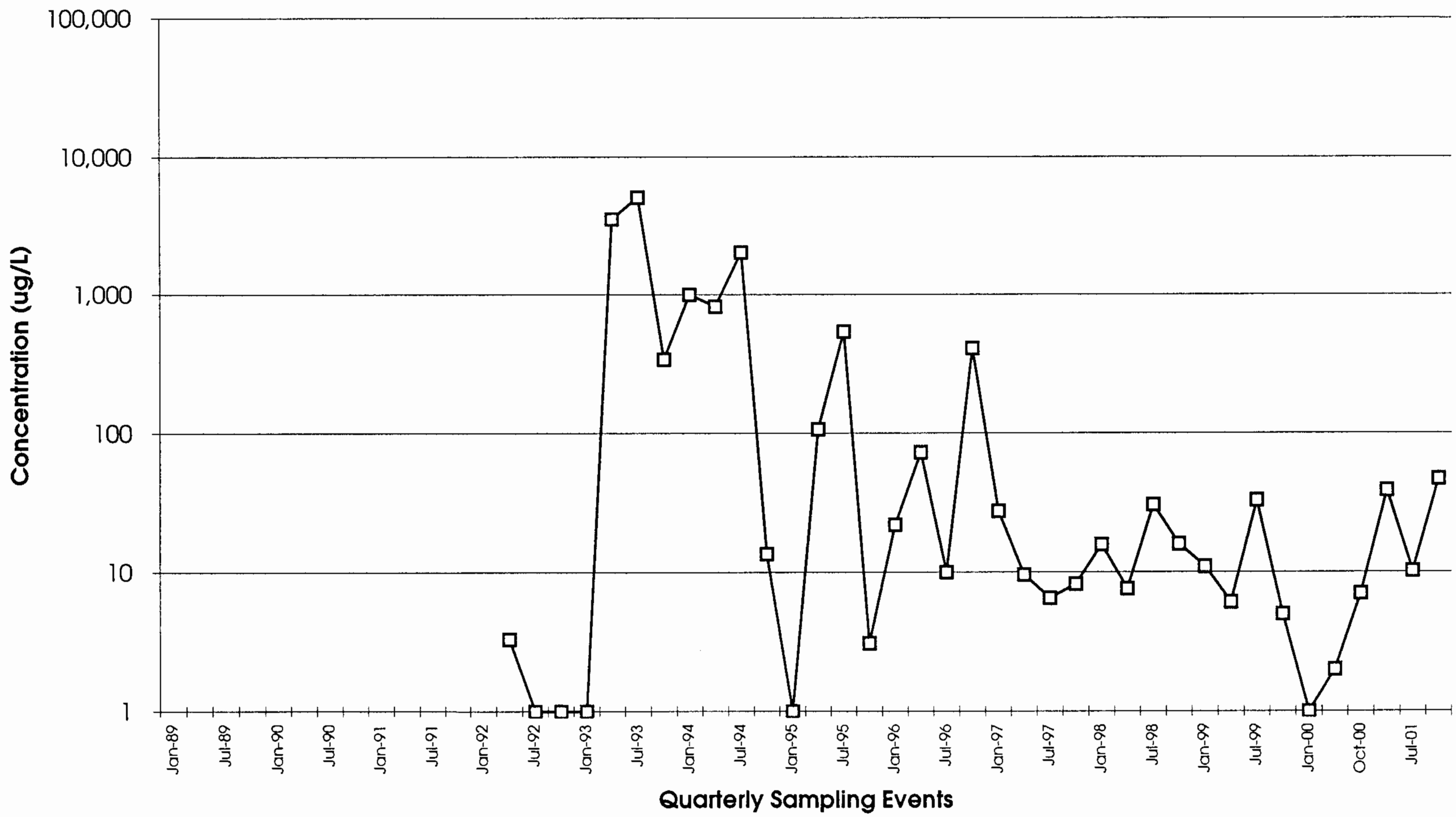
Btex14s.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-15S



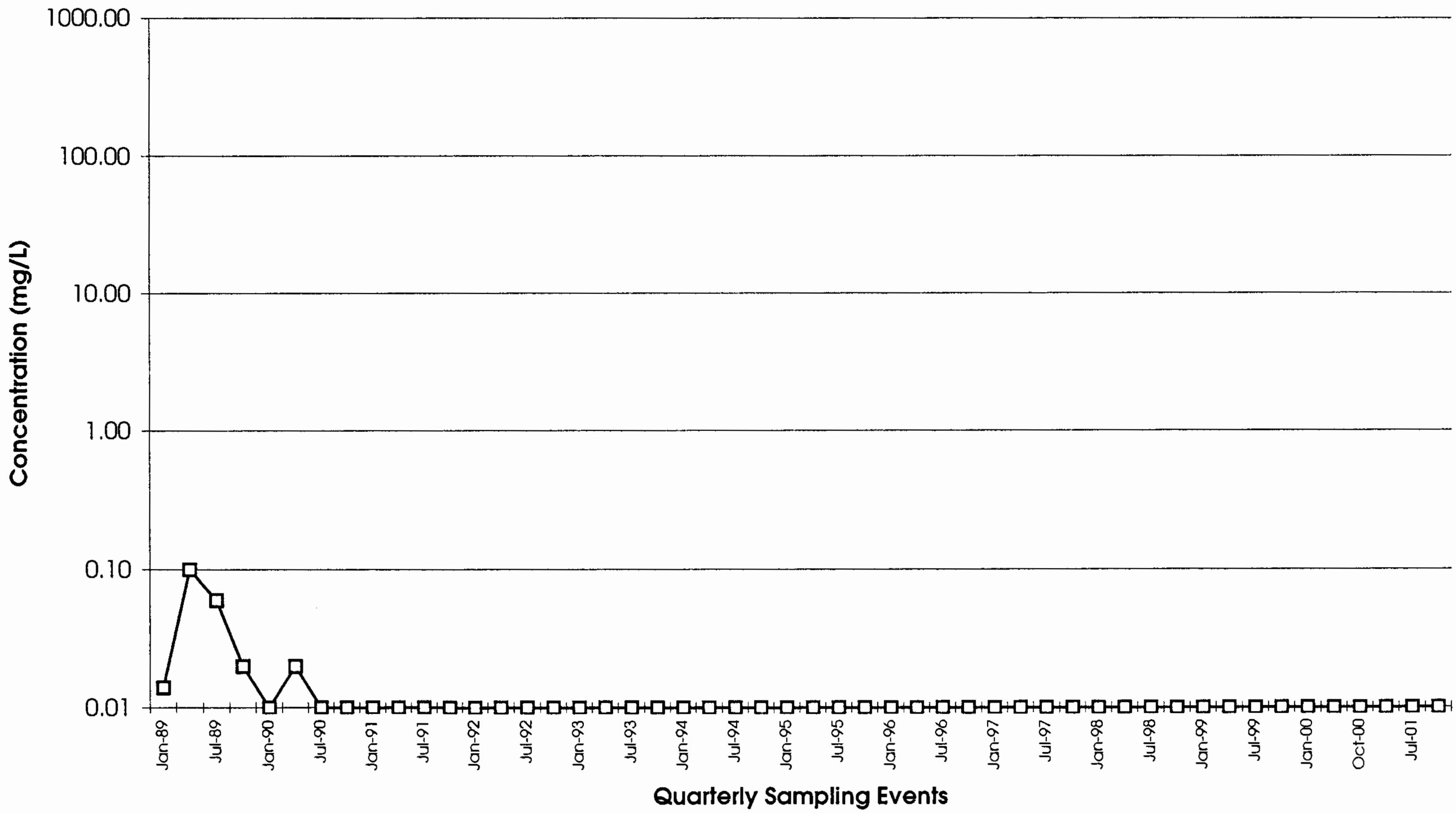
Btex15s.xlc

Phibro-Tech, Inc.
Total BTEX Concentrations
MW-16



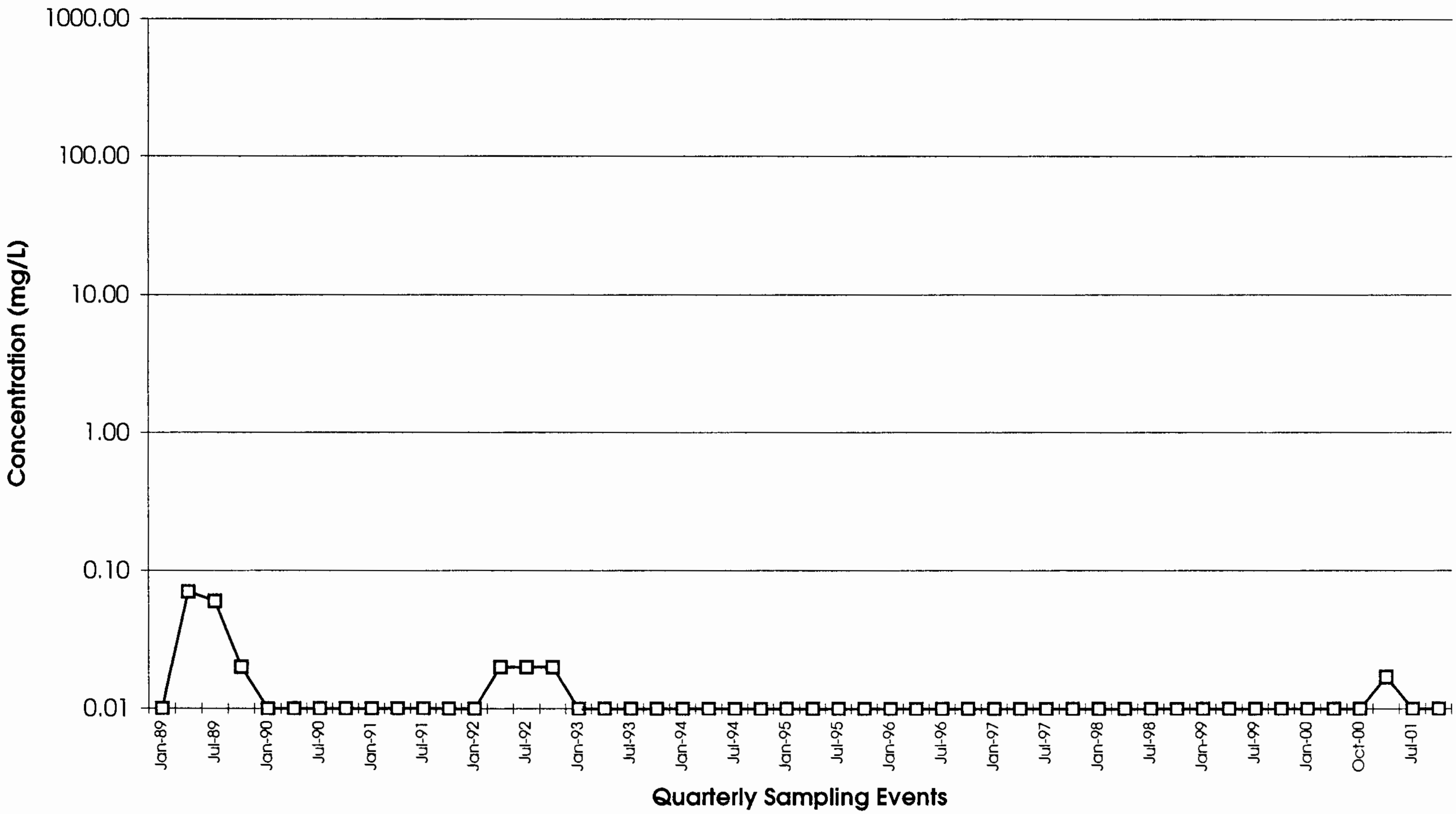
Btex16.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-01S

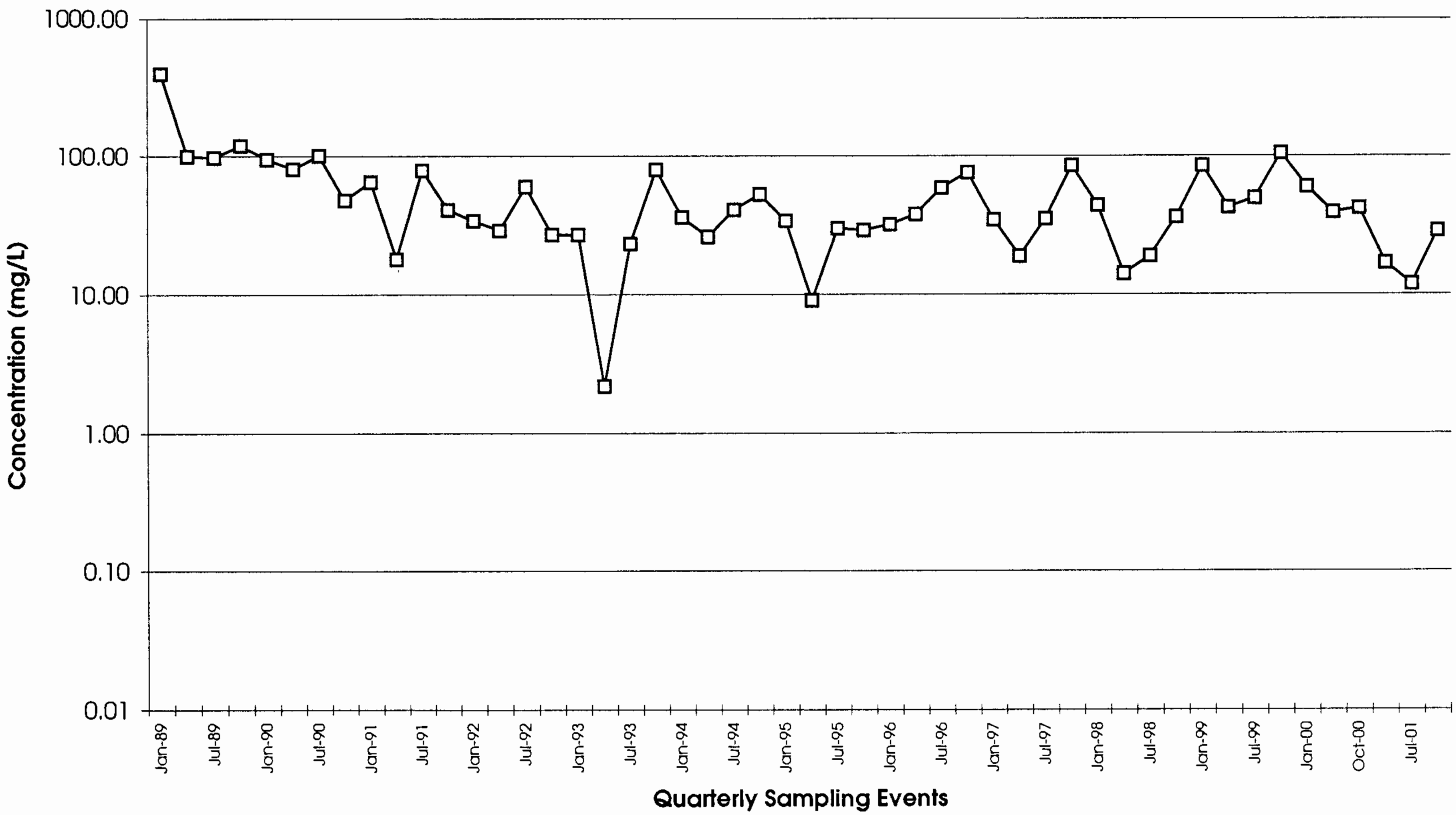


Tchrom01.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-03

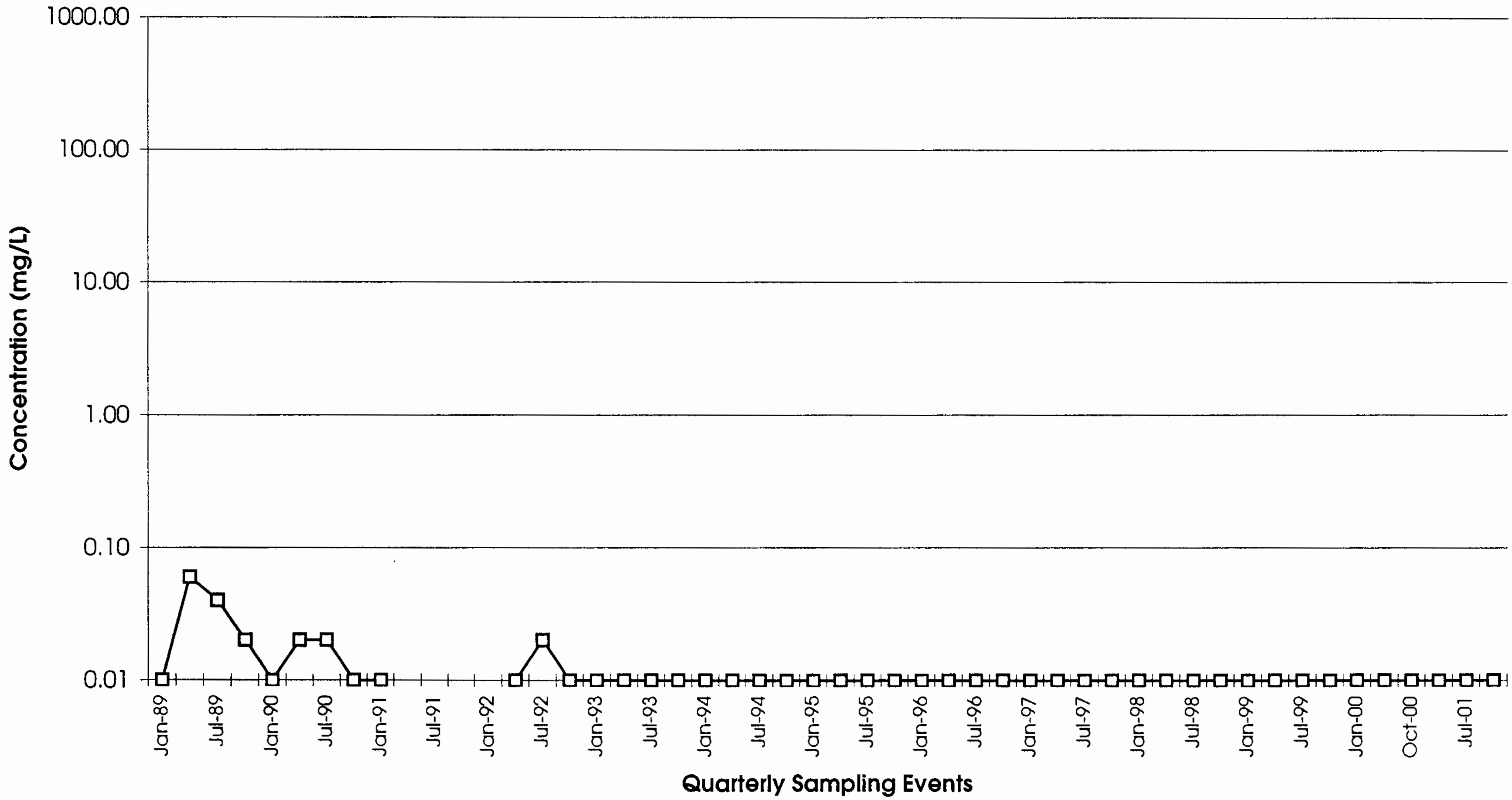


Phibro-Tech, Inc.
Total Chromium Concentrations
MW-04



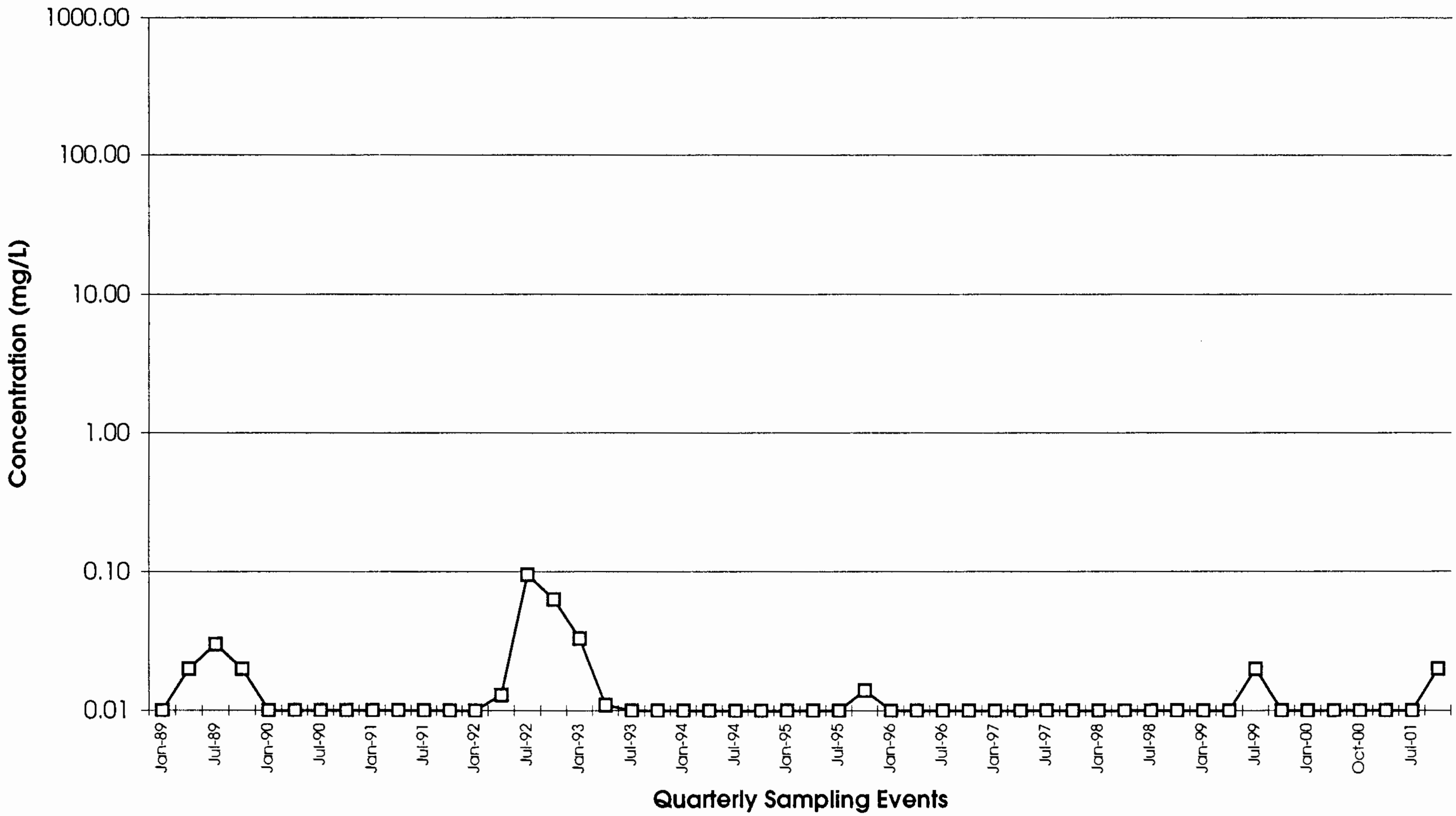
Tchrom04.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-06B



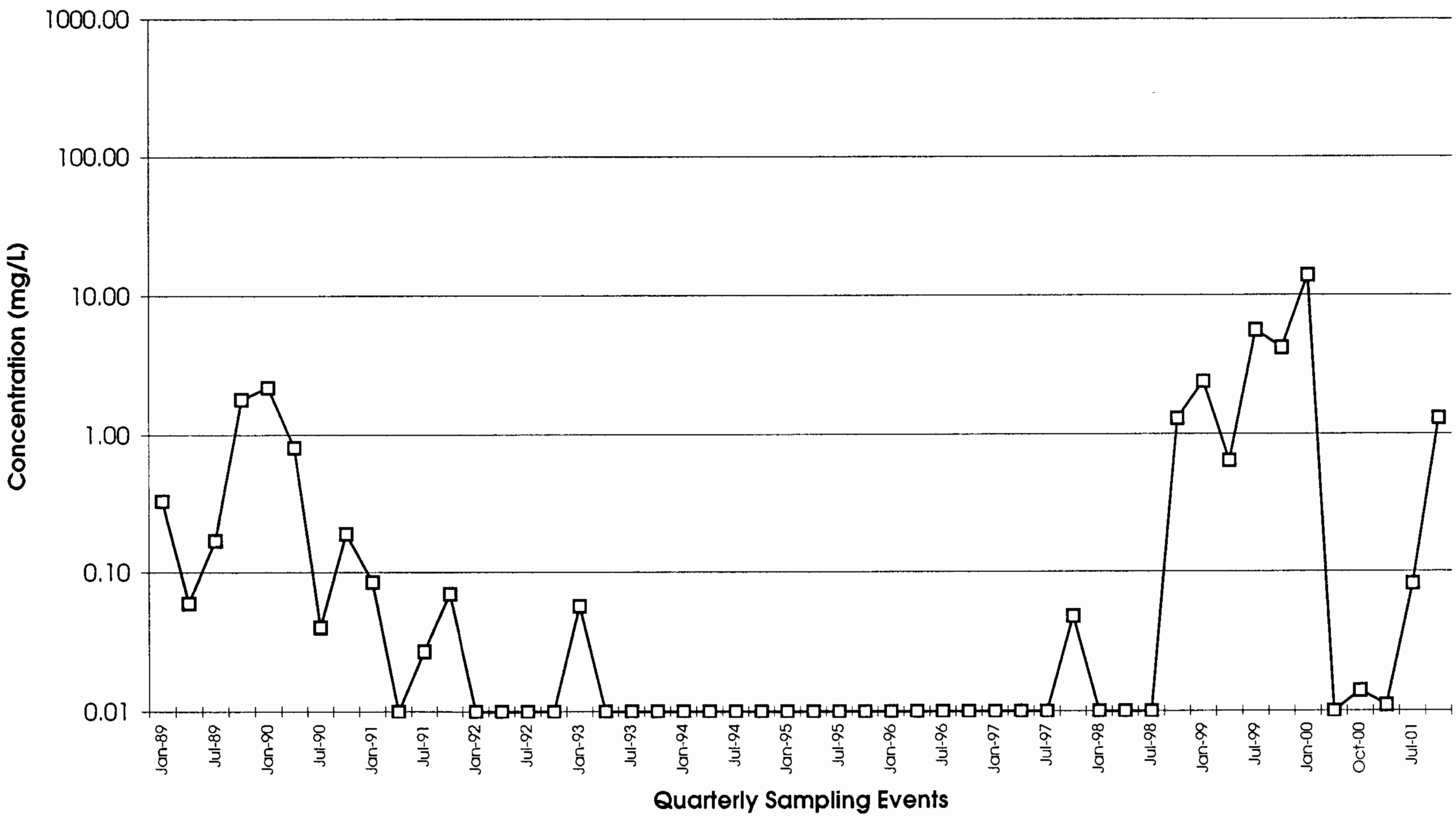
Tchrom6b.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-07



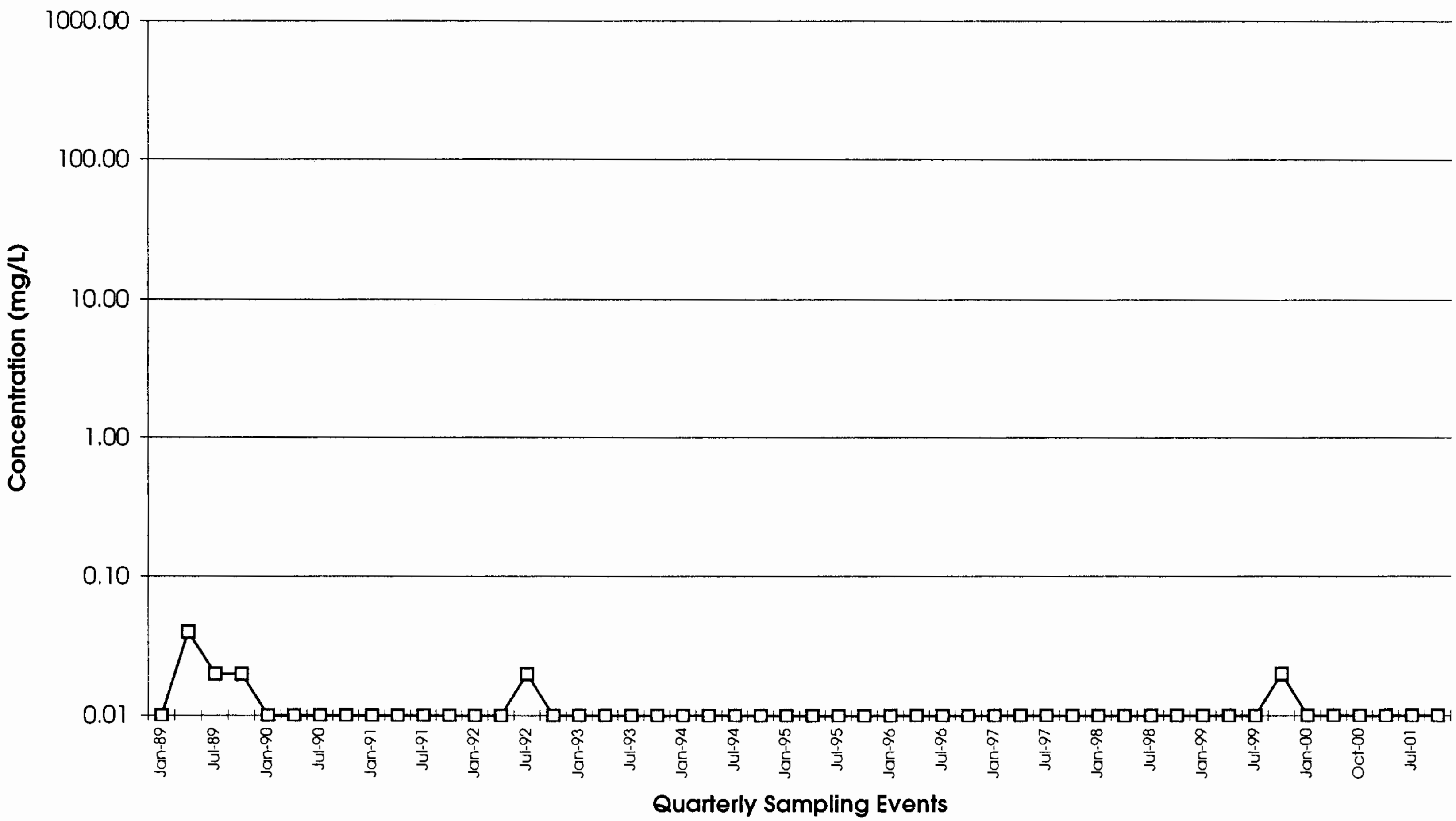
Tchrom07.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-09



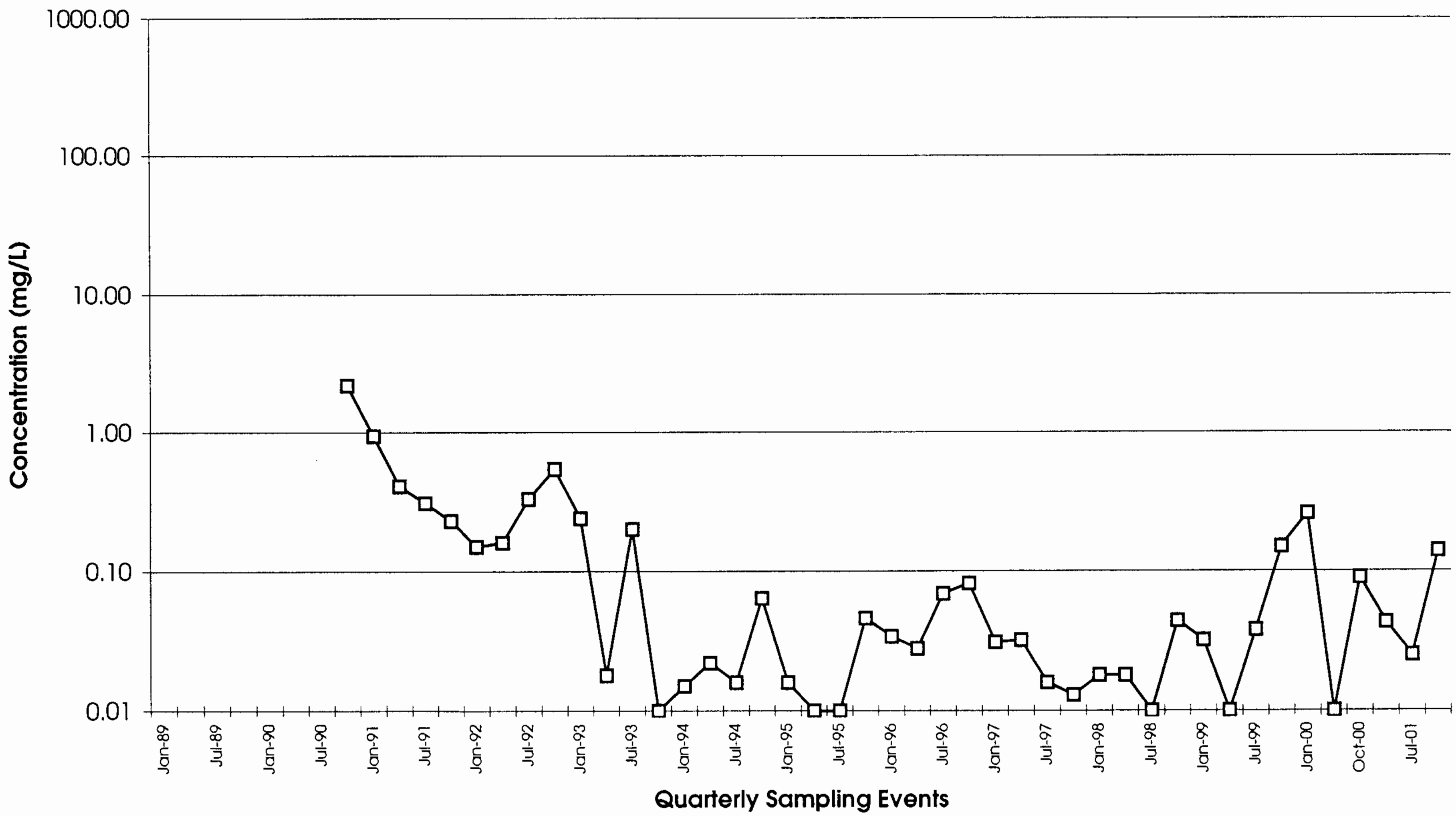
Tchrom09.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-11



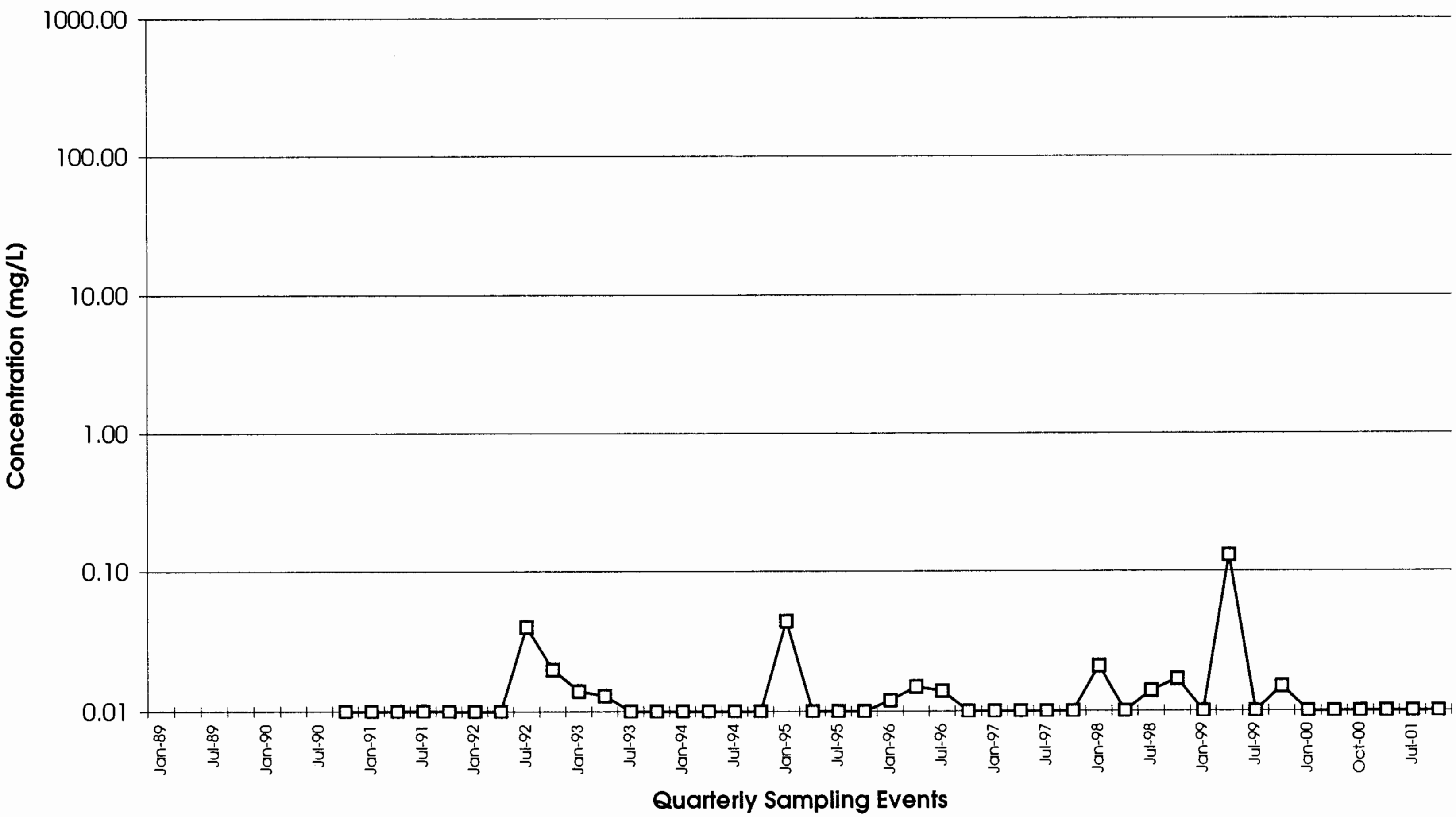
Tchrom11.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-14S



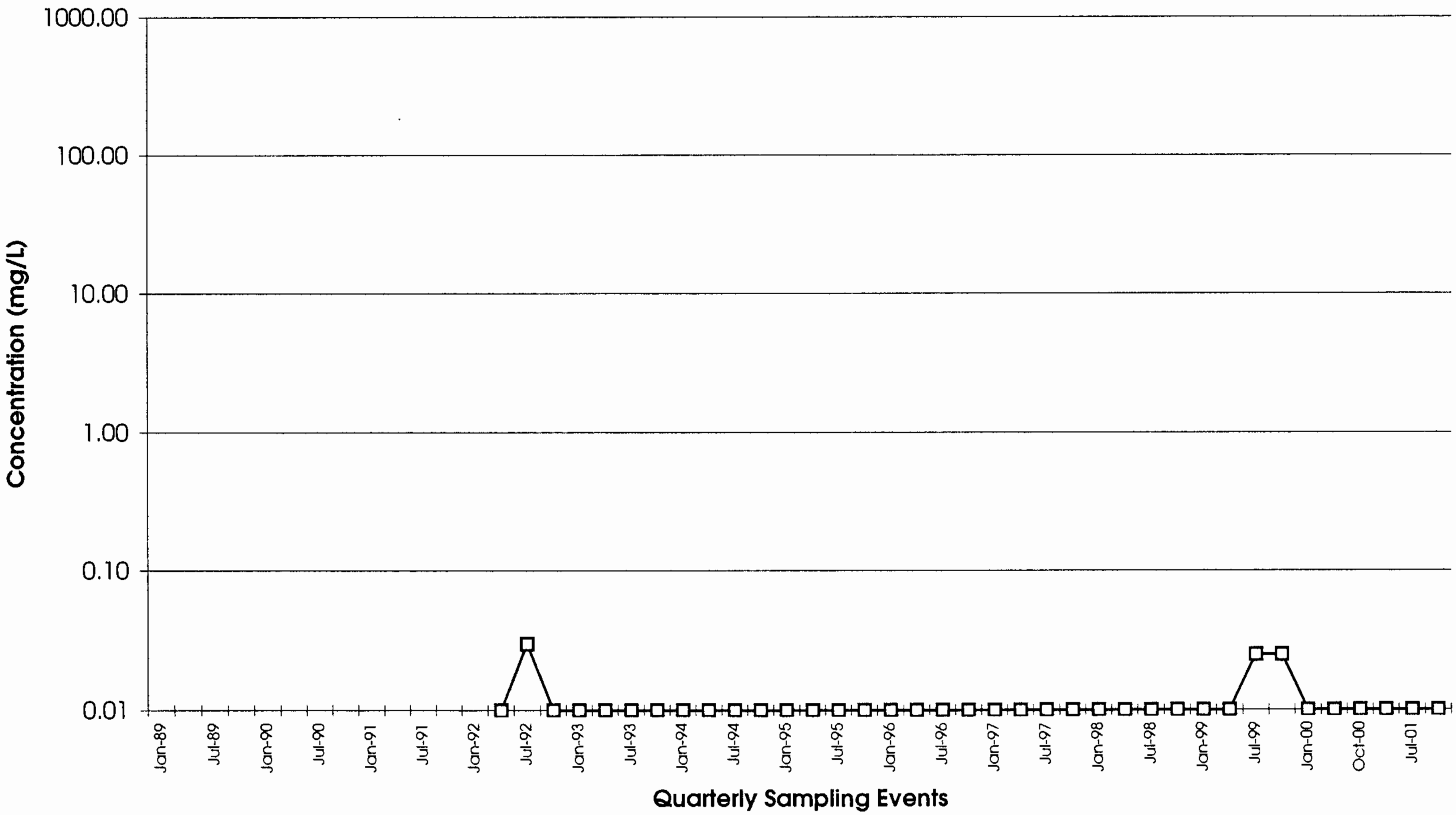
Tchro14s.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-15S



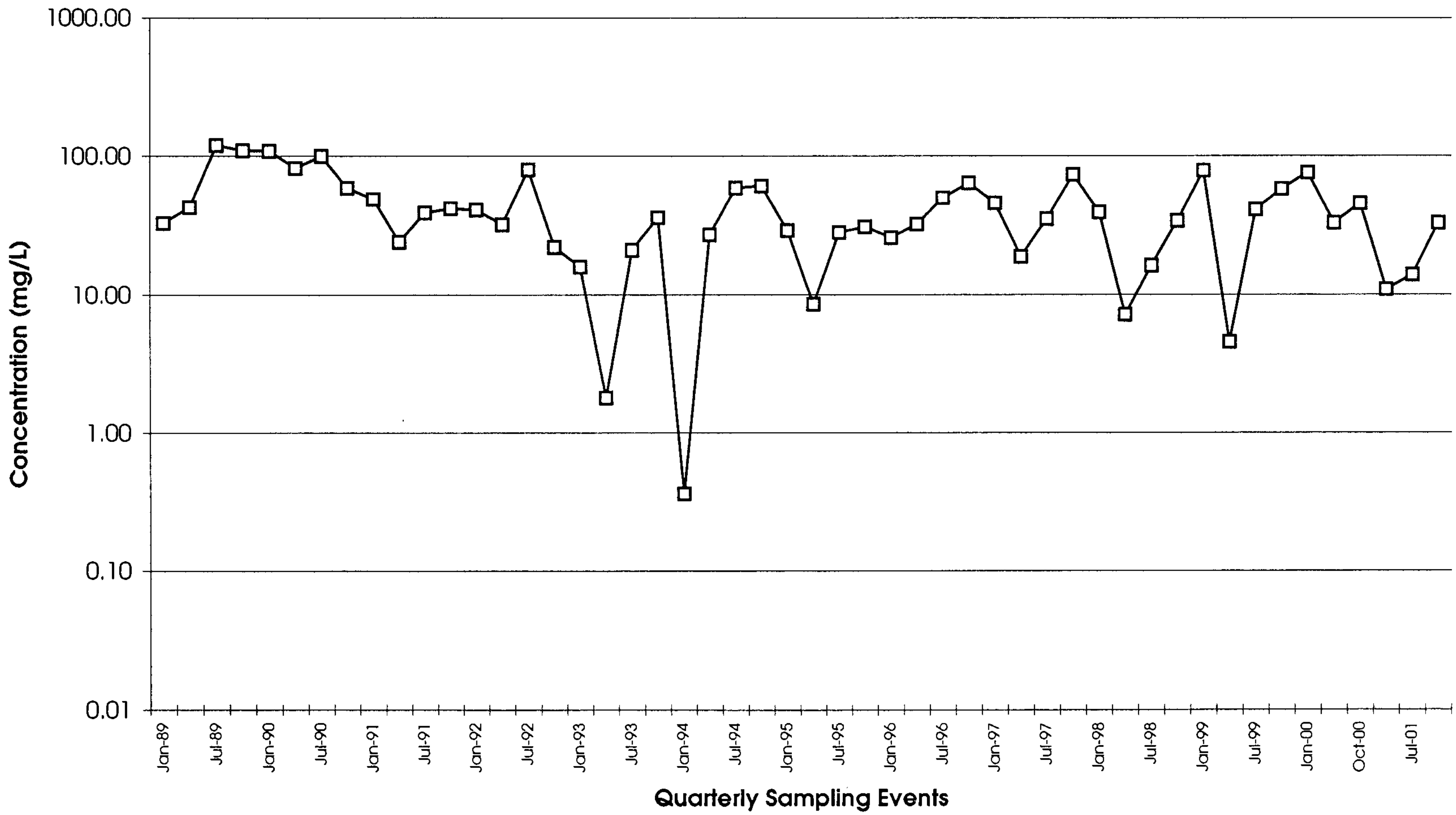
Tchro15s.xlc

Phibro-Tech, Inc.
Total Chromium Concentrations
MW-16



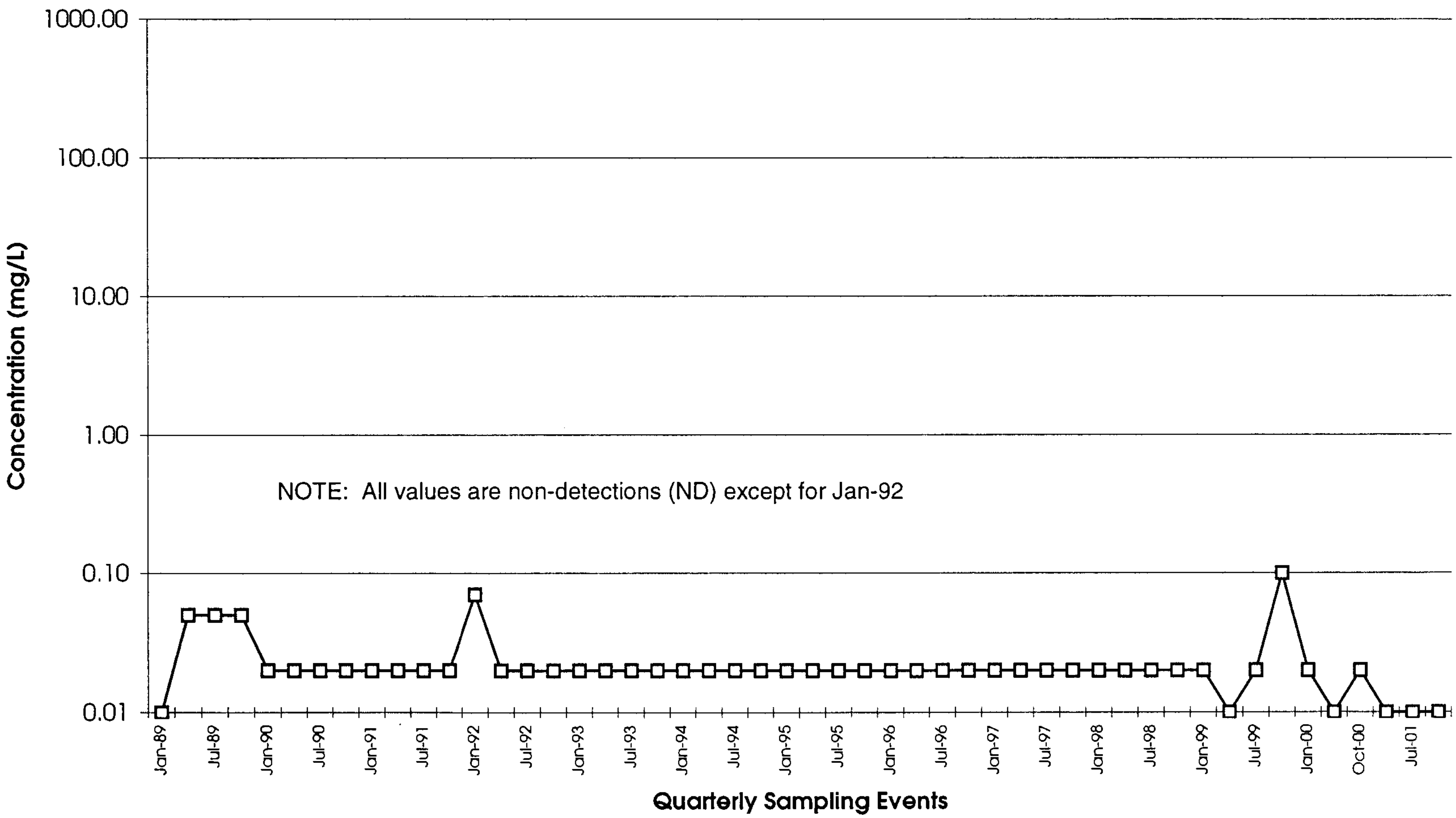
Tchrom16.xlc

Phibro-Tech, Inc.
Hexavalent Chromium Concentrations
MW-04



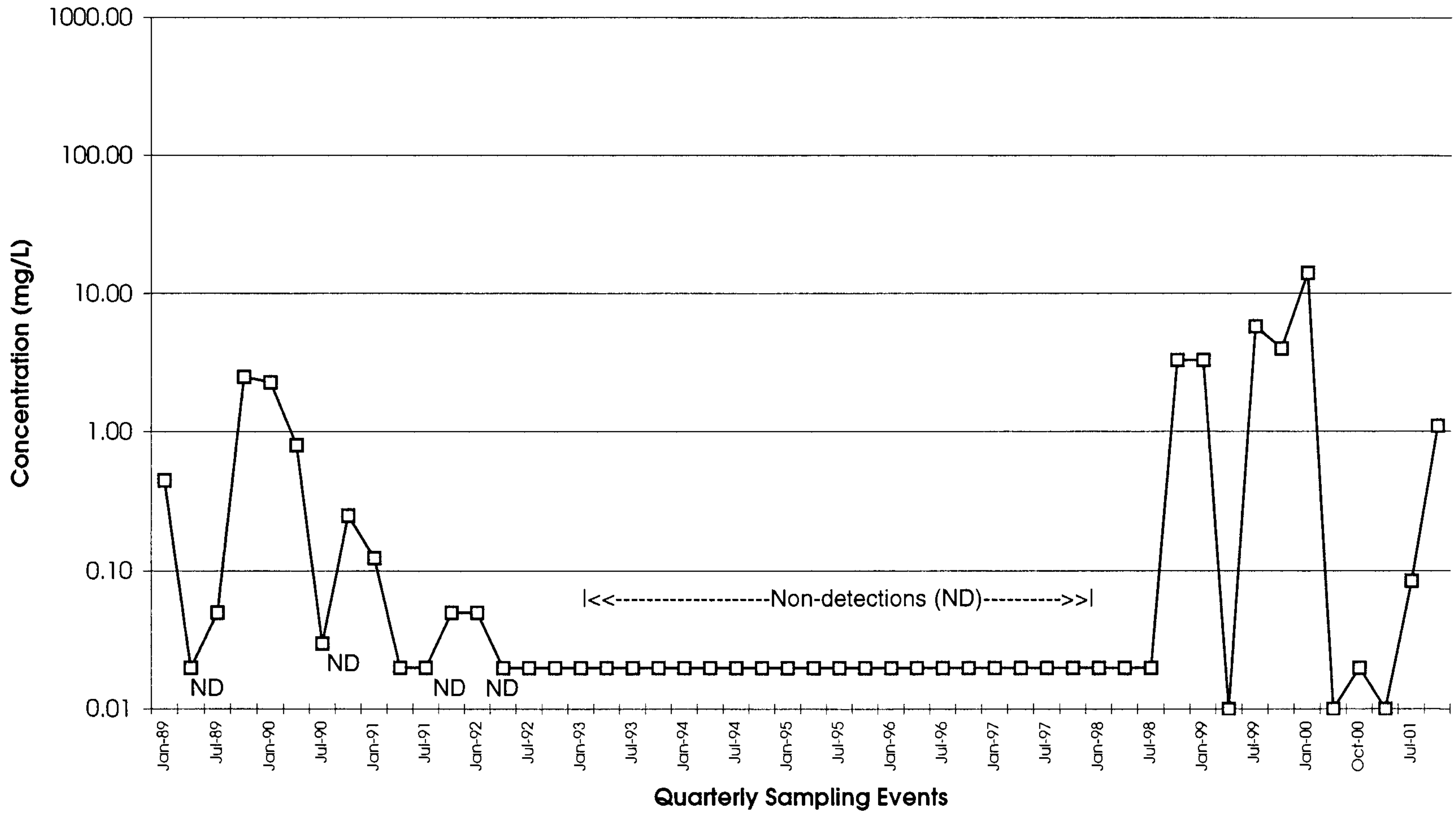
Hchrom04.xlc

Phibro-Tech, Inc.
Hexavalent Chromium Concentrations
MW-07



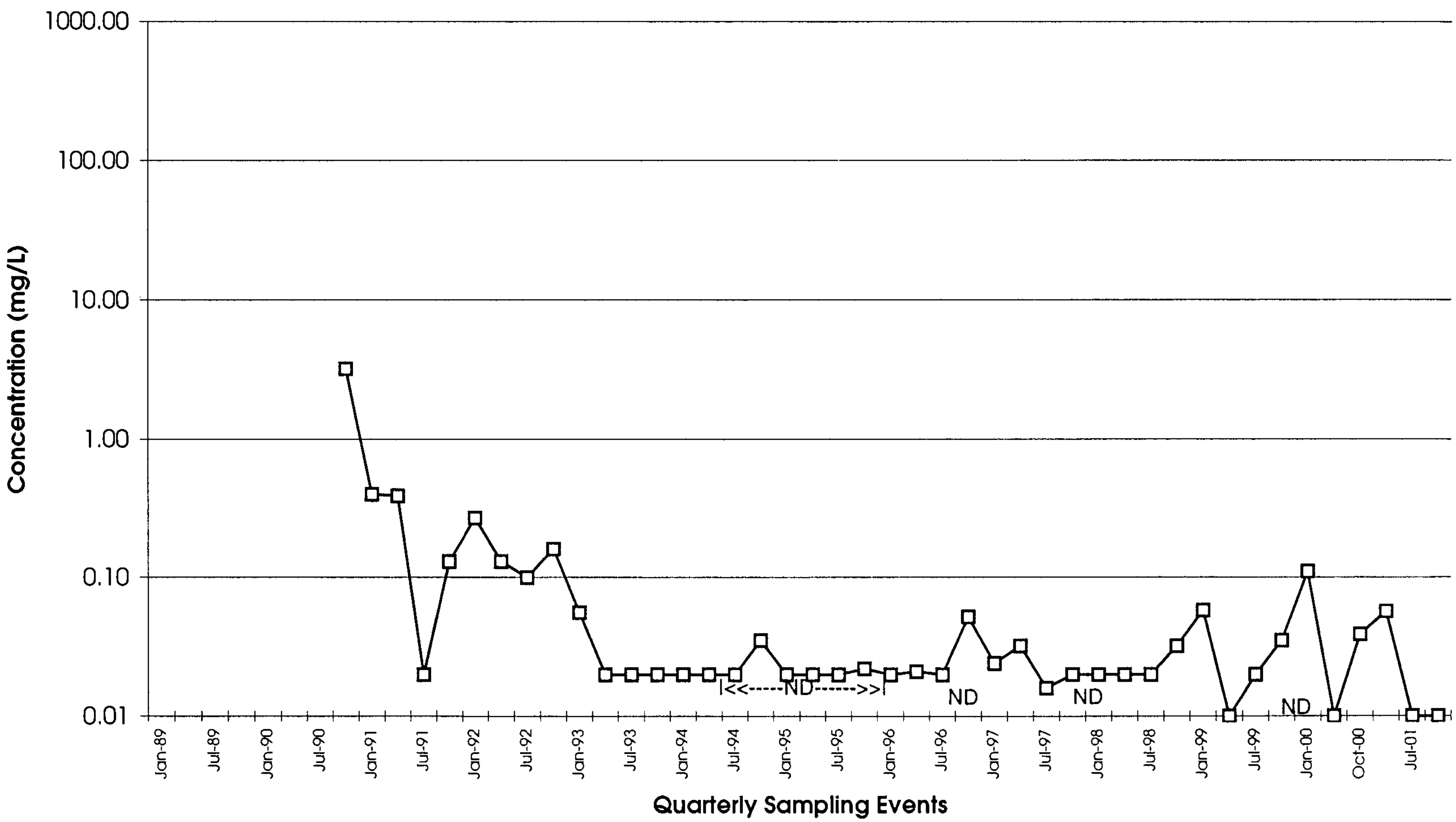
Hchrom07.xlc

Phibro-Tech, Inc.
Hexavalent Chromium Concentrations
MW-09



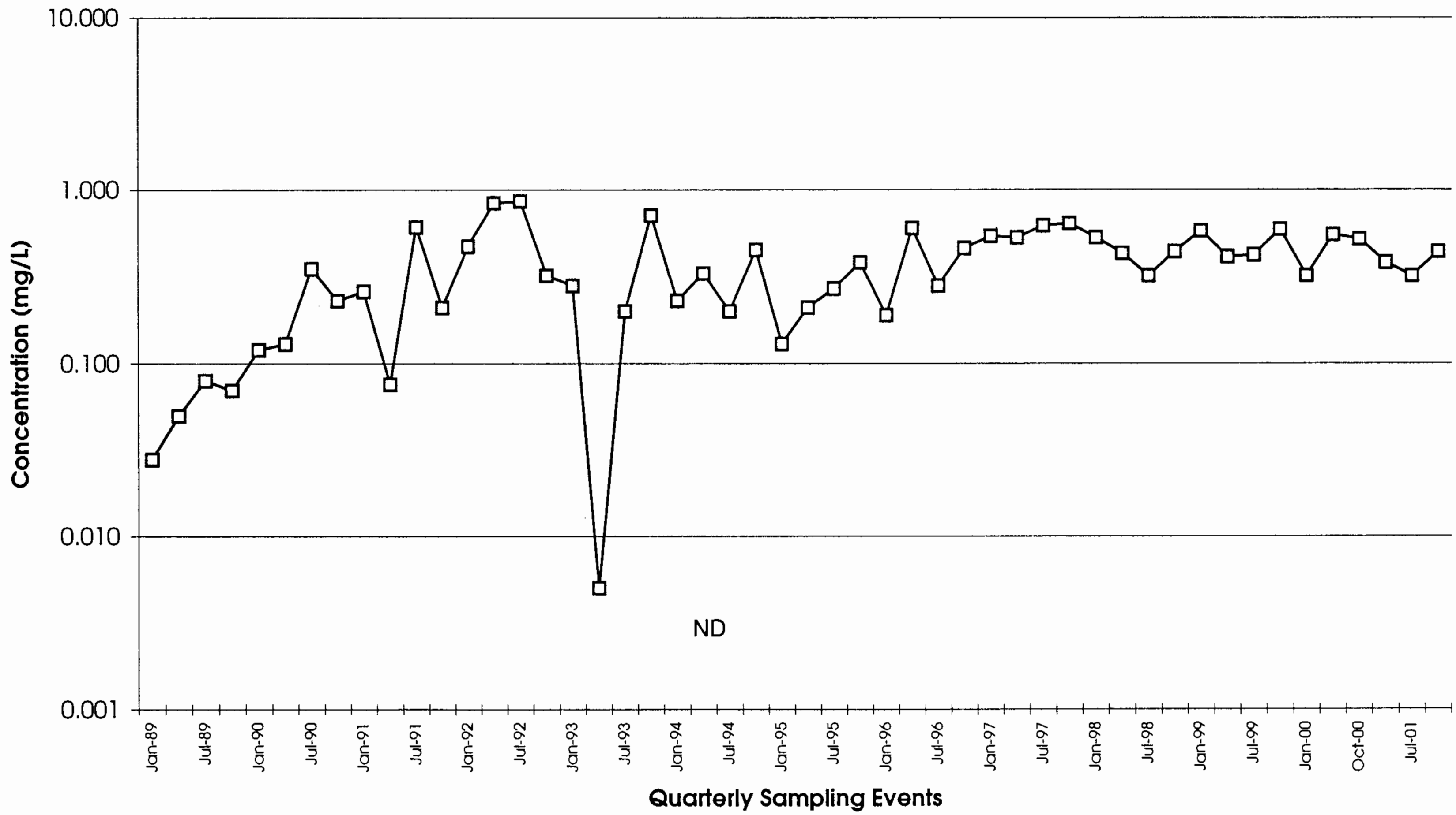
Hchrom09.xlc

Phibro-Tech, Inc.
Hexavalent Chromium Concentrations
MW-14S



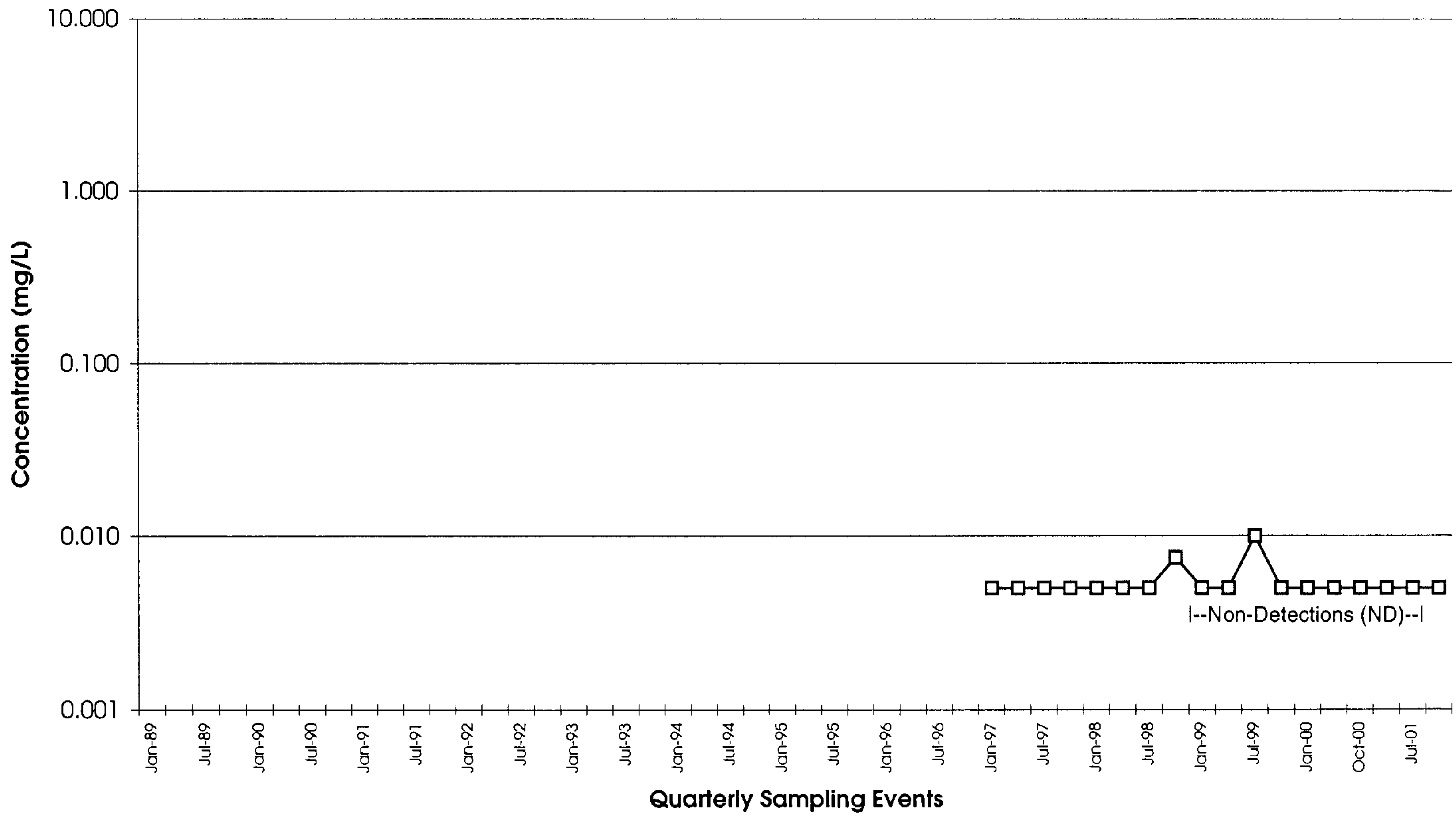
Hchro14s.xlc

Phibro-Tech, Inc.
Cadmium Concentrations
MW-04



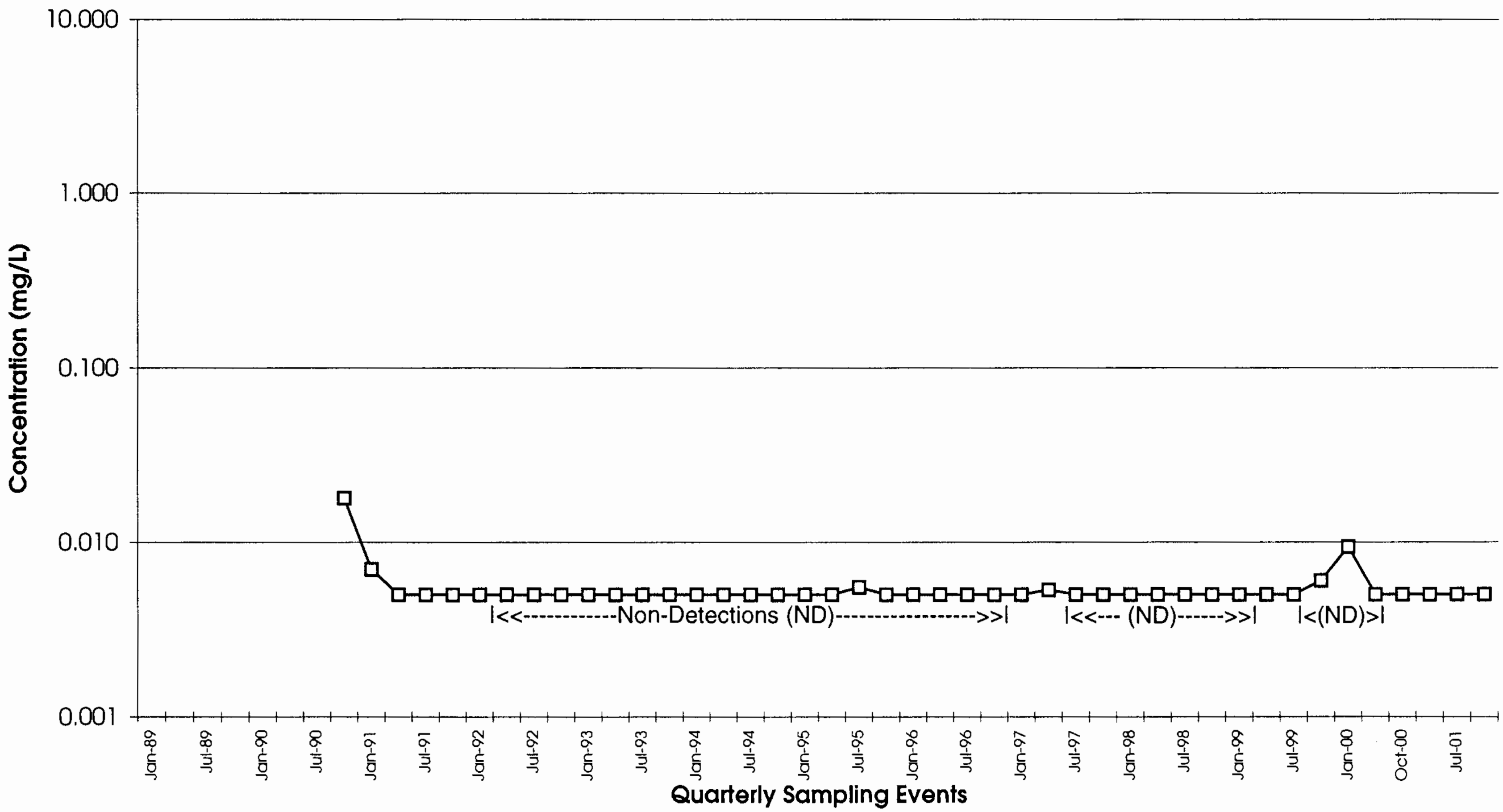
Cadmiu04.xlc

Phibro-Tech, Inc.
Cadmium Concentrations
MW-09



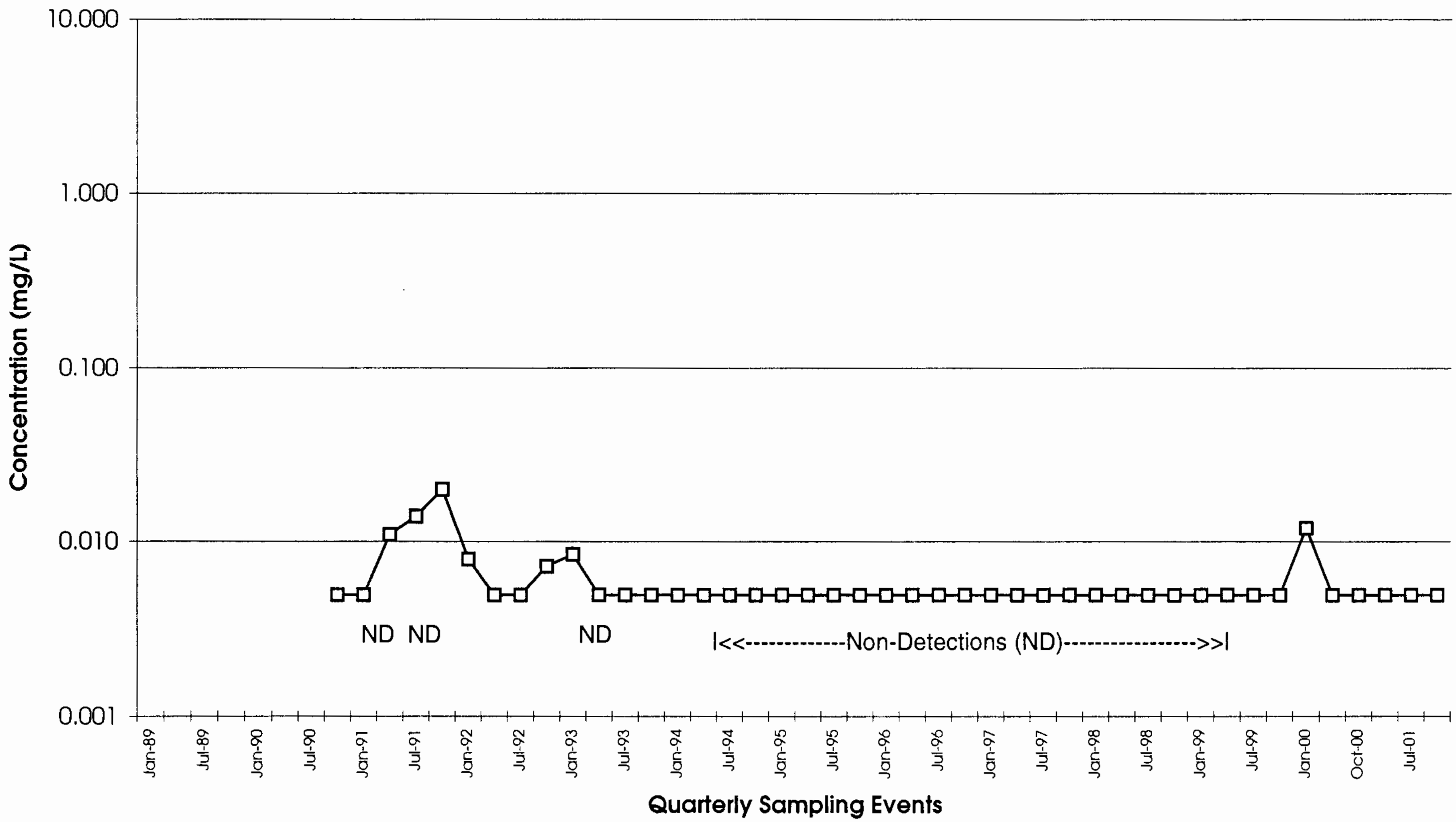
Cadmi09.xlc

Phibro-Tech, Inc.
Cadmium Concentrations
MW-14S



Cadmi14s.xlc

Phibro-Tech, Inc.
Cadmium Concentrations
MW-15S



Cadmi15s.xlc